

Figure 1. Triglyceride content of a *Drosophila guf* (GadFly Accession Number CG16747) mutant

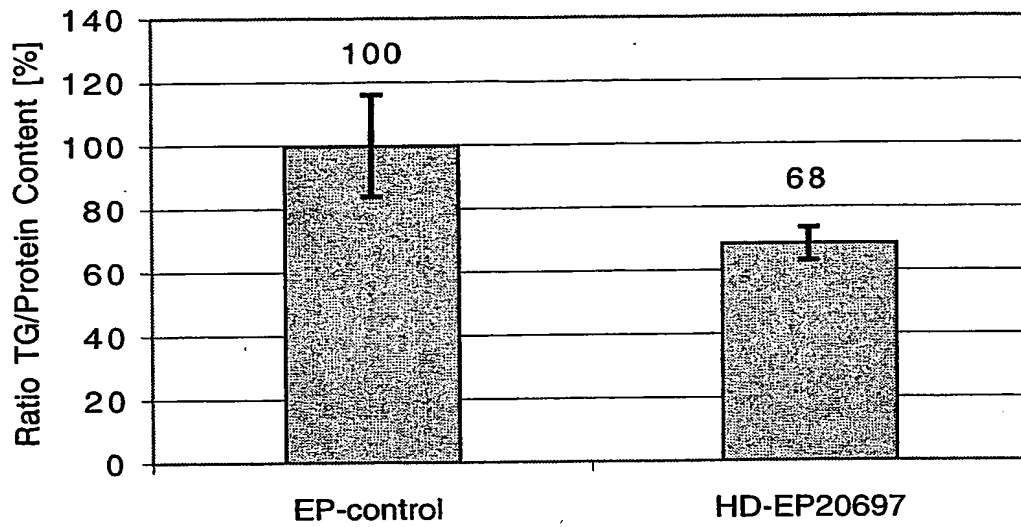


Figure 2. Molecular organization of the *guf* gene (GadFly Accession Number CG16747)

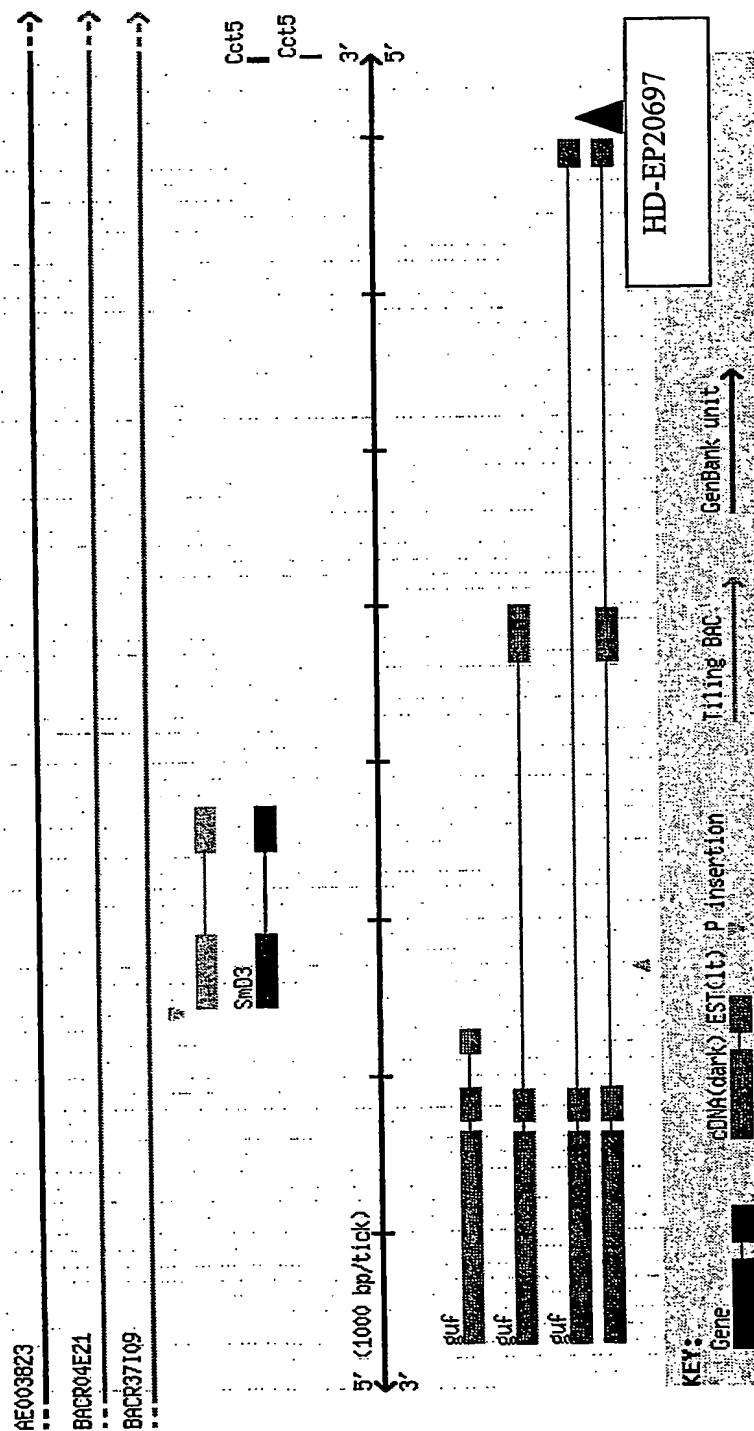


Figure 3. Expression of the *guf* (GadFly Accession Number CG16747) Homologs in Mammalian Tissues

Figure 3A. Real-time PCR analysis of ornithine decarboxylase antizyme 1 (*Oaz1*) expression in wild type mouse tissues

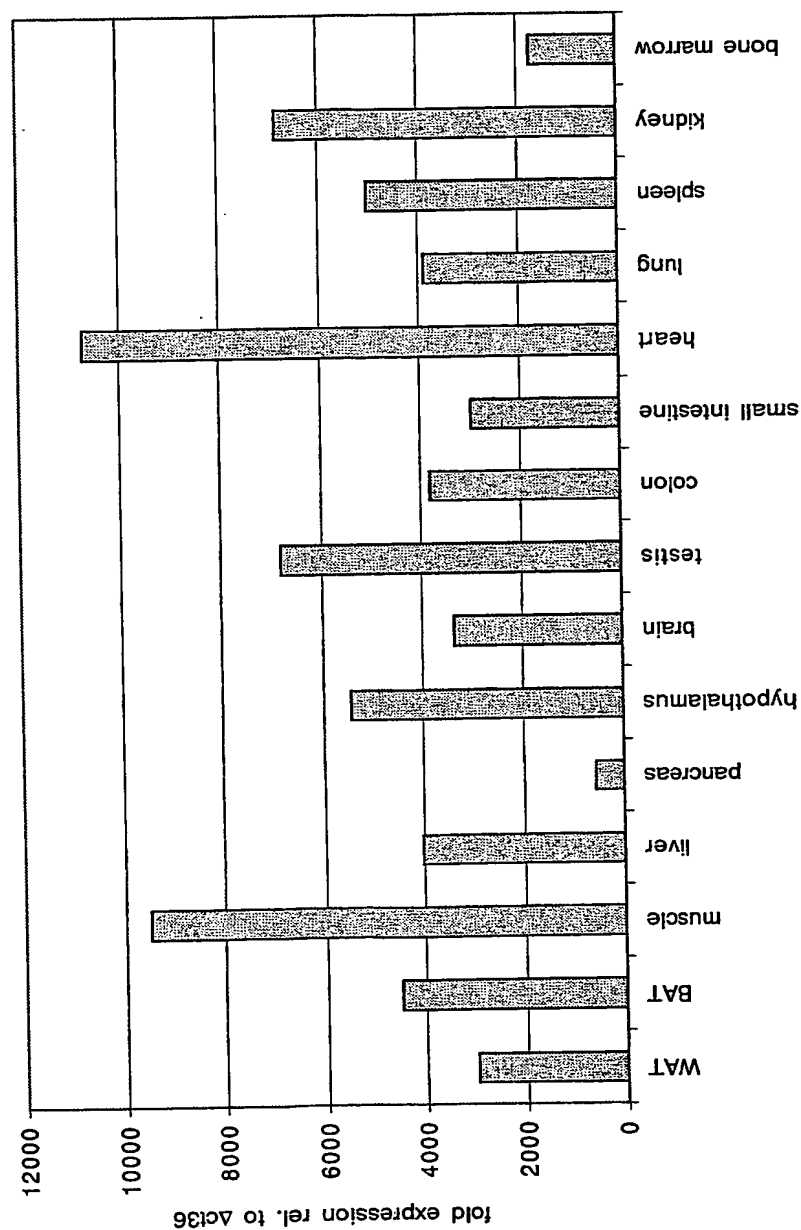


Figure 3B. Real-time PCR analysis of Oaz1 expression in different mouse models

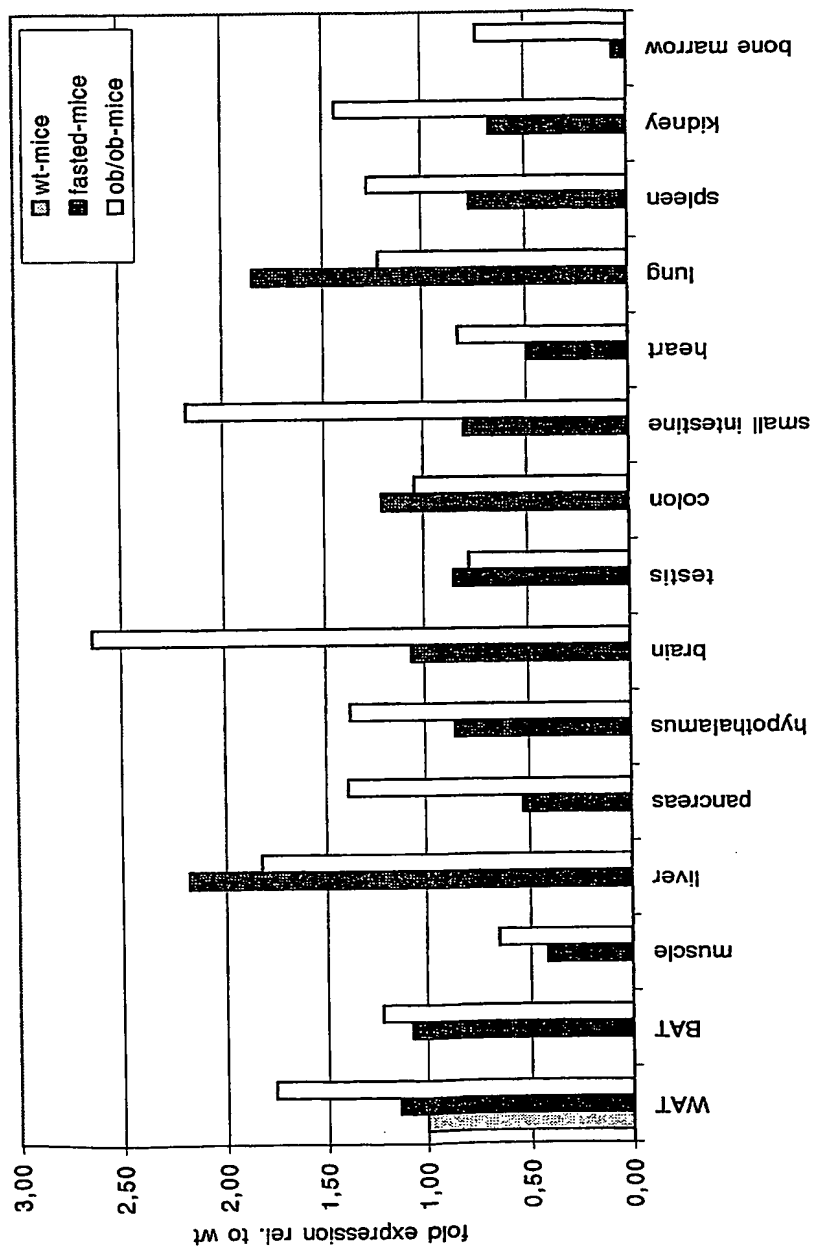


Figure 3C. Real-time PCR analysis of Oaz1 expression in mice fed with a high fat diet compared to mice fed with a control diet

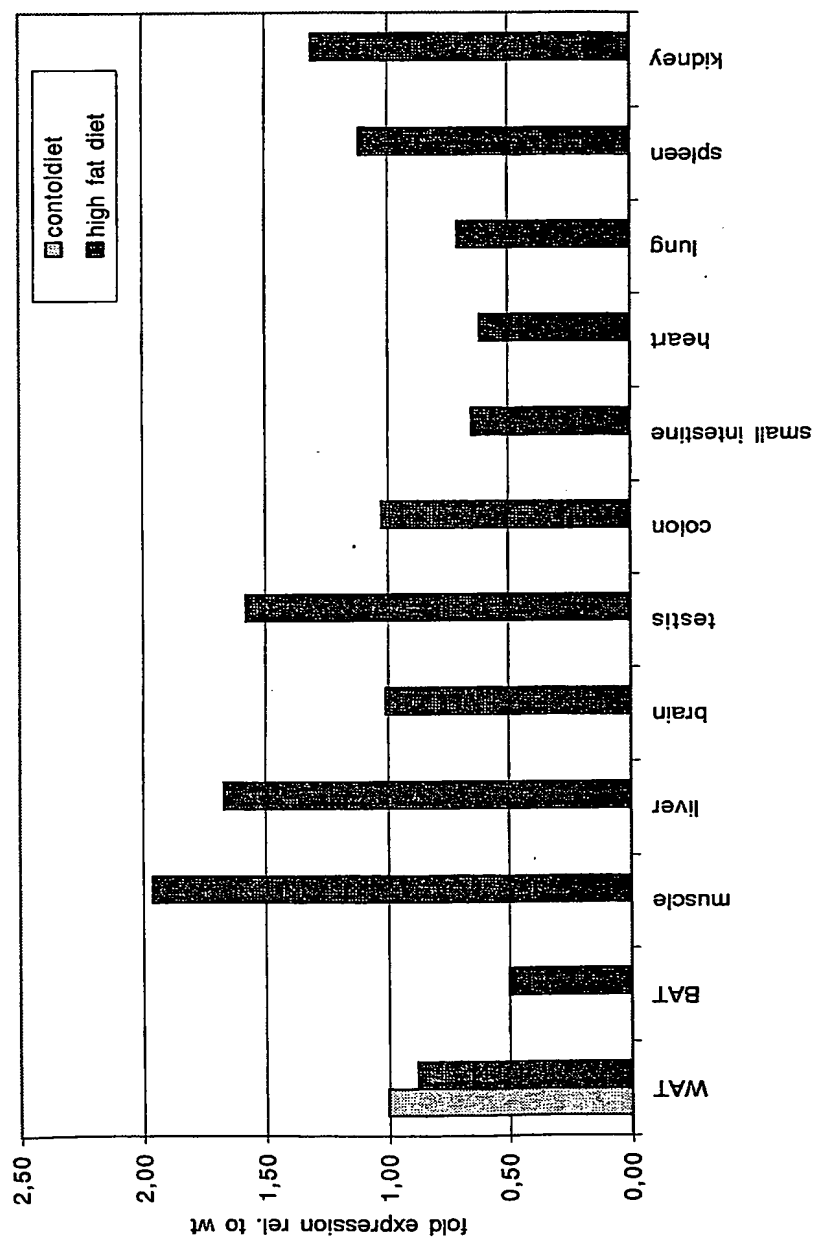


Figure 3D. Real-time PCR analysis of Oaz1 expression in 3T3-L1 cells differentiated from preadipocytes to mature adipocytes

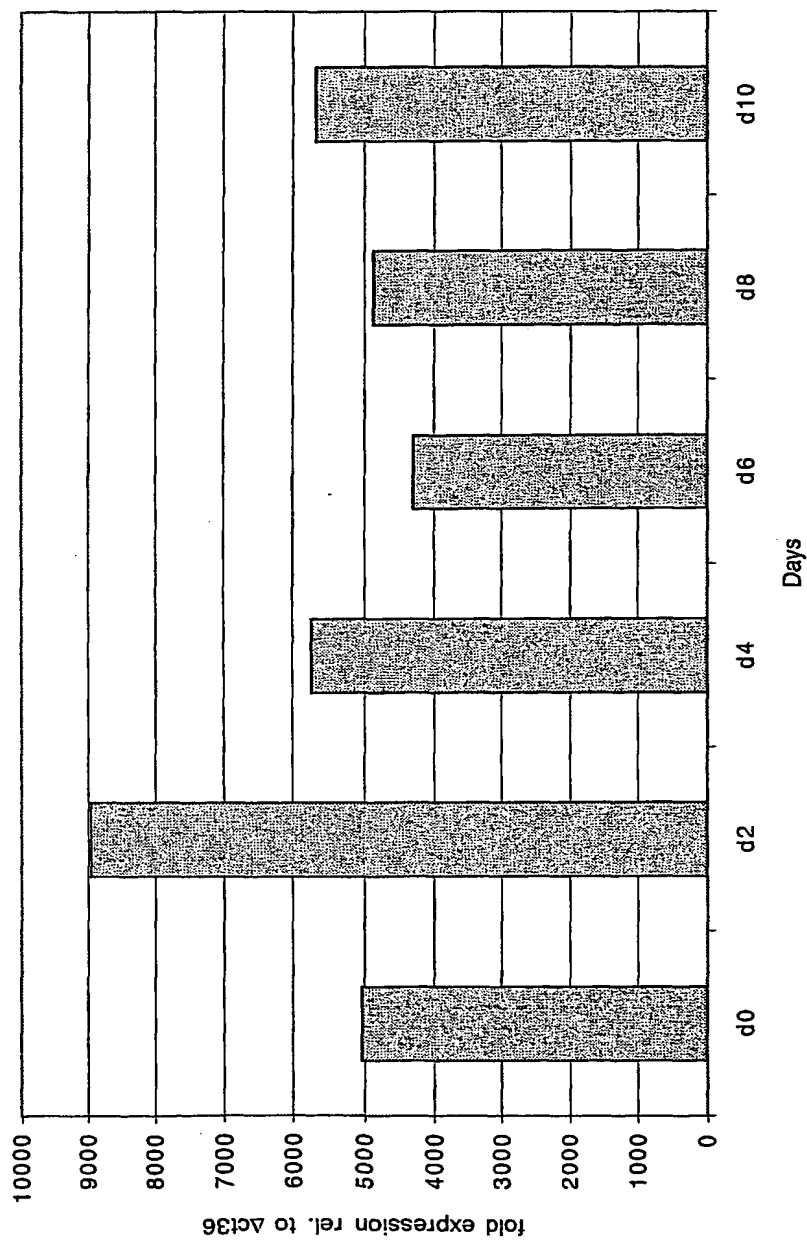


Figure 3E. Real-time PCR analysis of ornithine decarboxylase antizyme 2 (Oaz2) expression in wild type mouse tissues

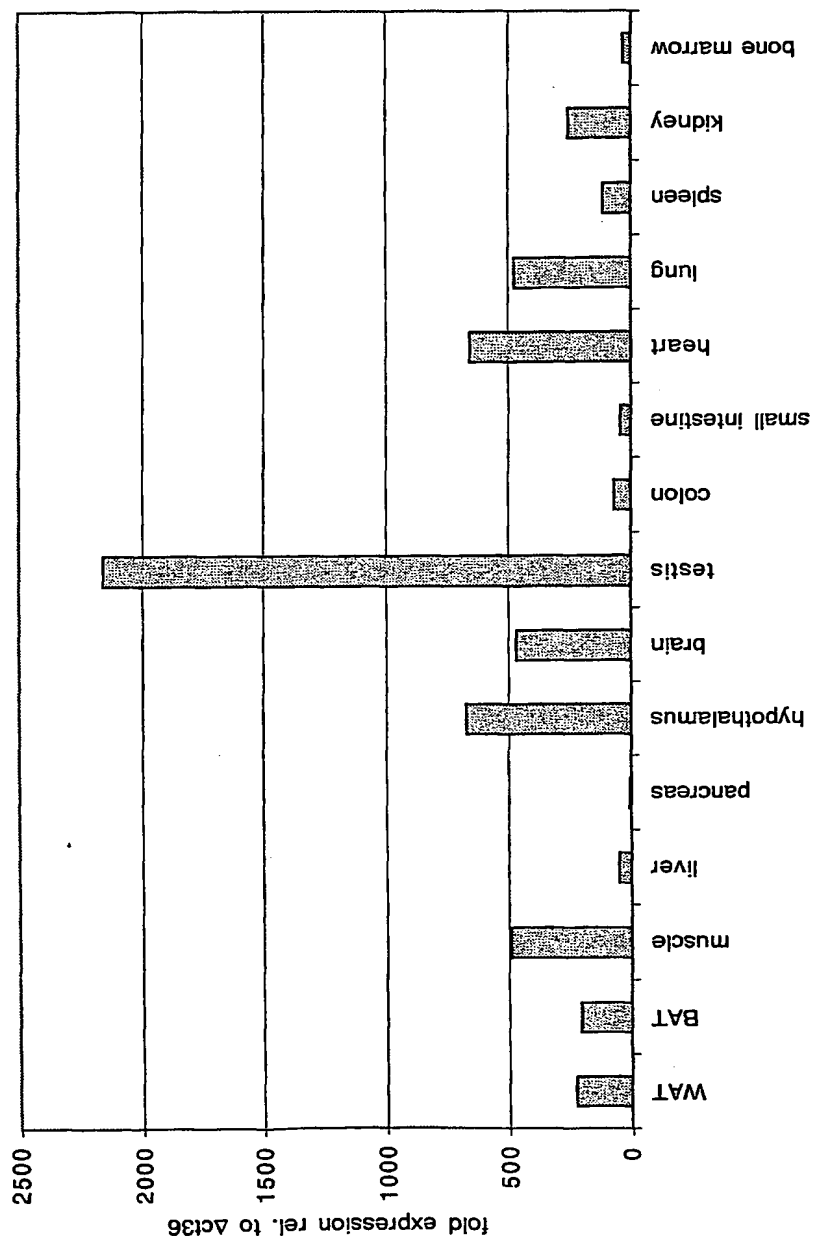


Figure 3F. Real-time PCR analysis of Oaz2 expression in different mouse models

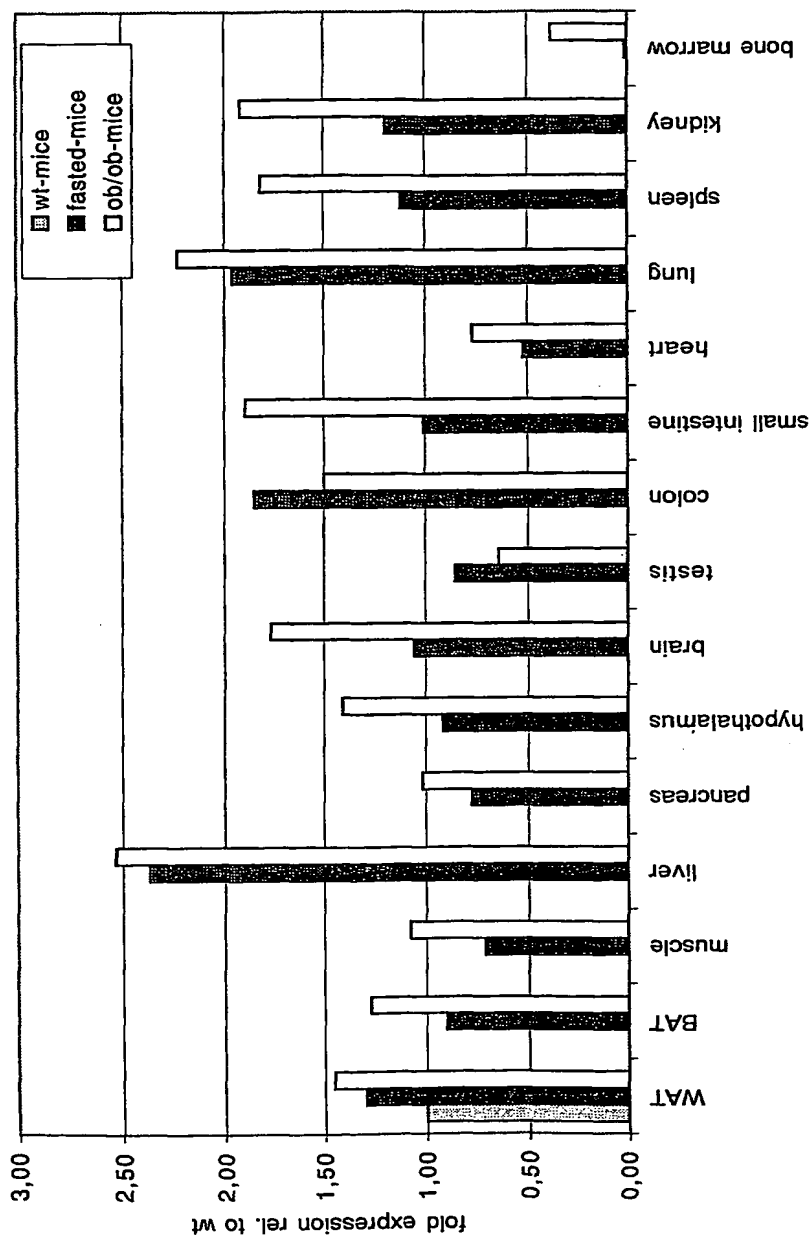


Figure 3G. Real-time PCR analysis of Oaz2 expression in mice fed with a high fat diet compared to mice fed with a control diet

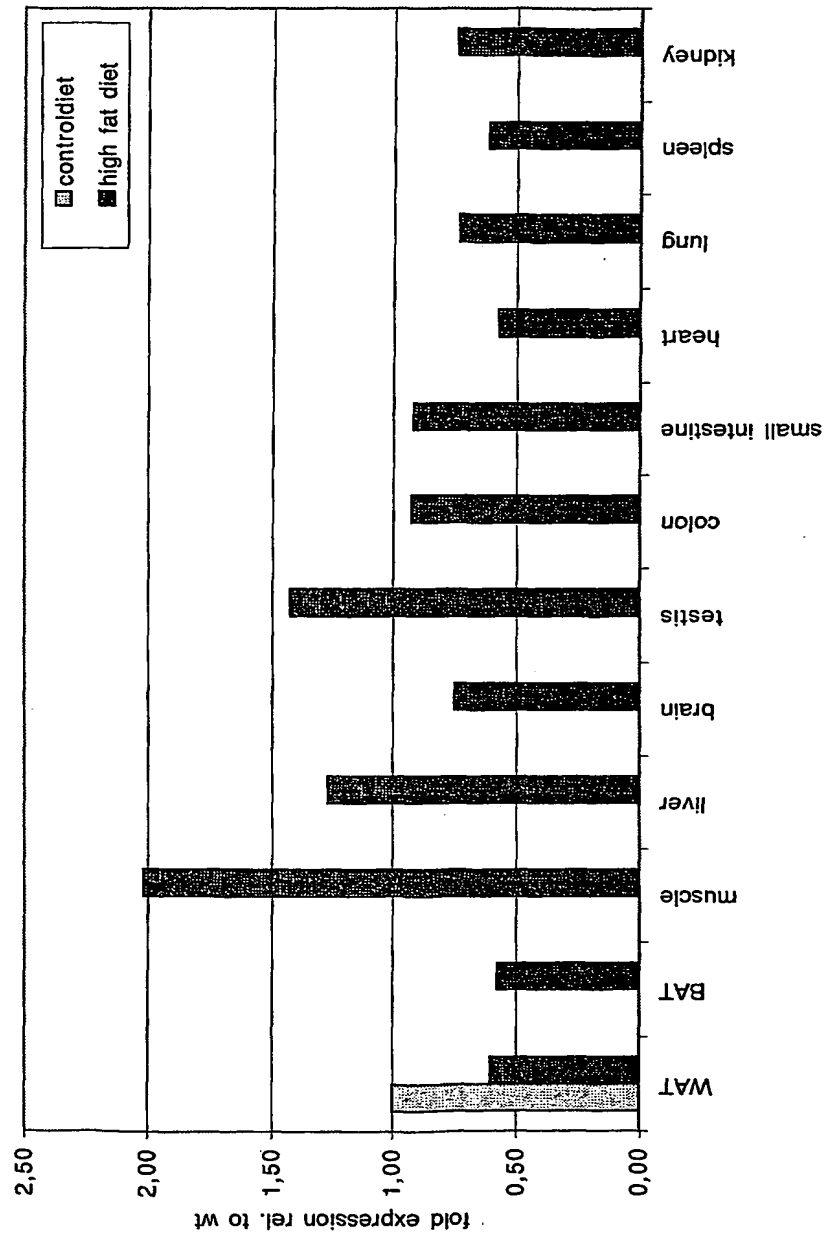


Figure 3H. Real-time PCR analysis of Oaz2 expression in 3T3-L1 cells differentiated from preadipocytes to mature adipocytes

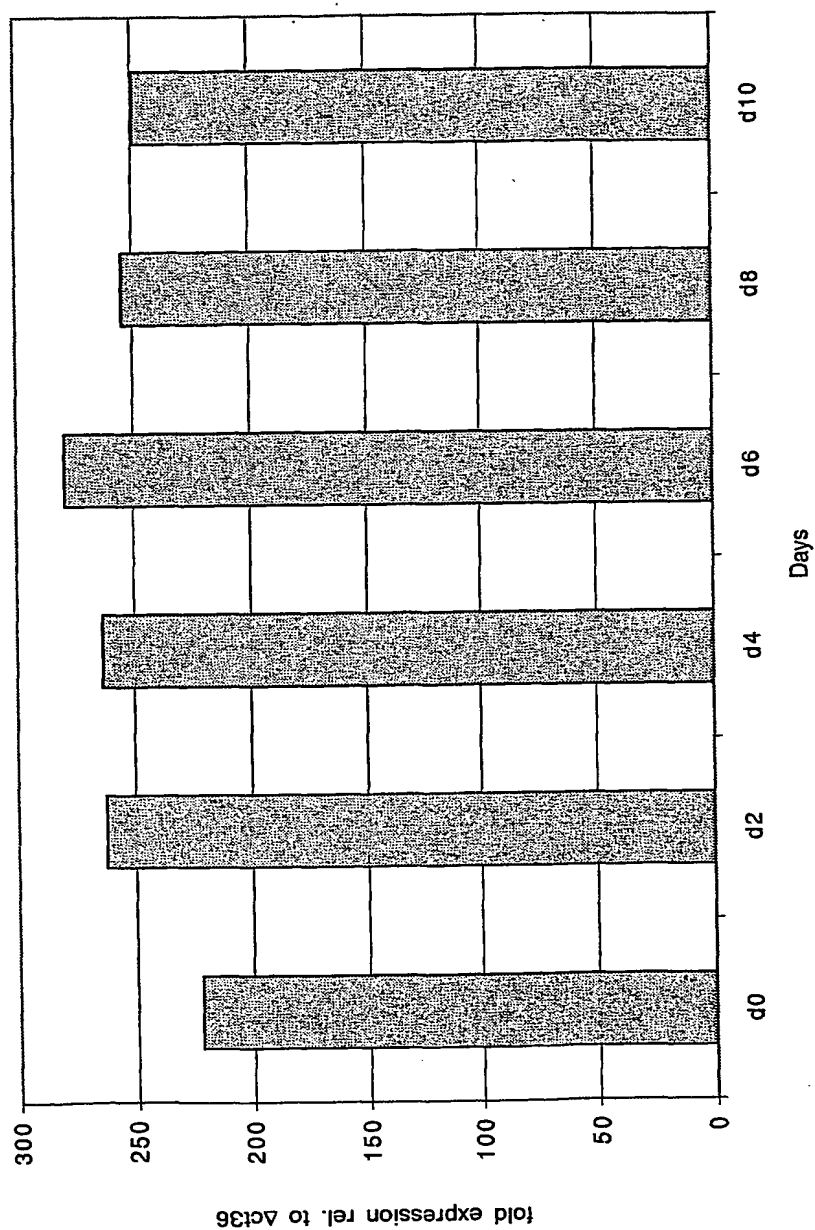


Figure 3L. Real-time PCR analysis of ornithine decarboxylase antizyme 3 (Oaz3) expression in wild type mouse tissues

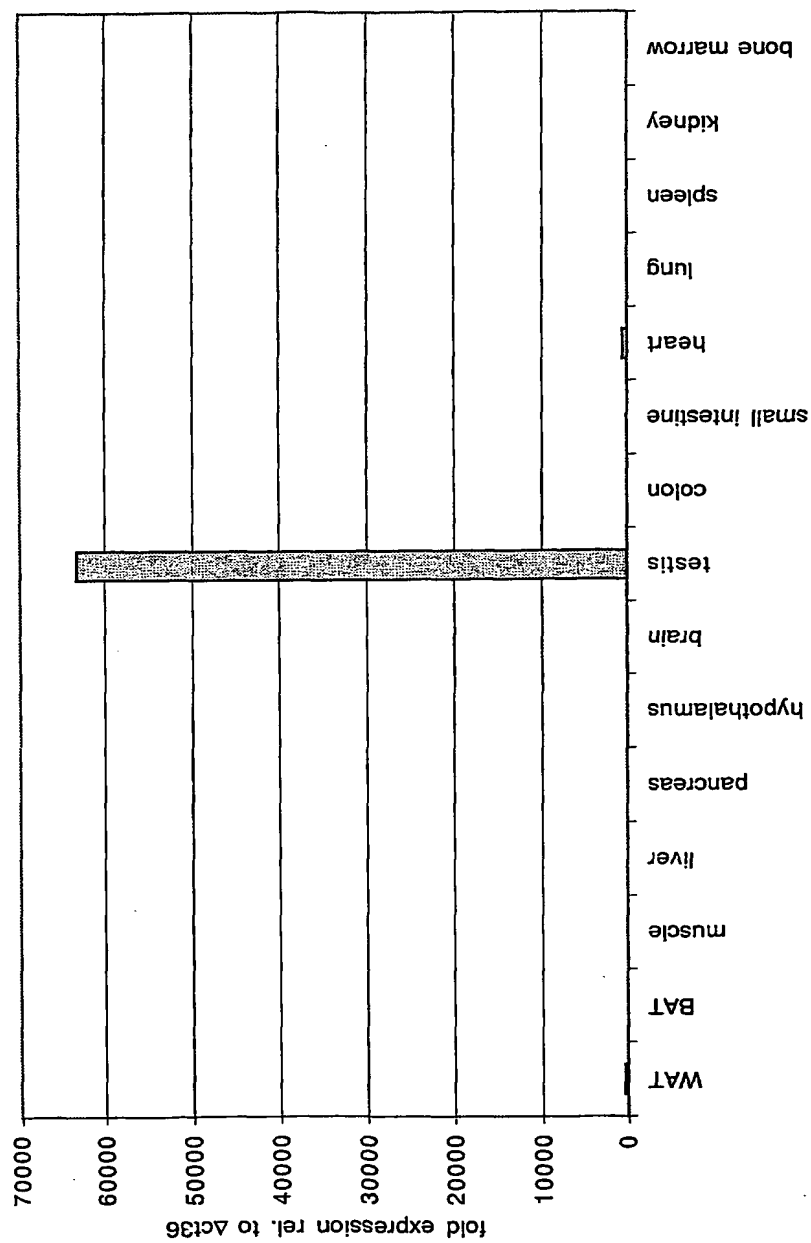


Figure 3J. Real-time PCR analysis of Oaz3 expression in different mouse models

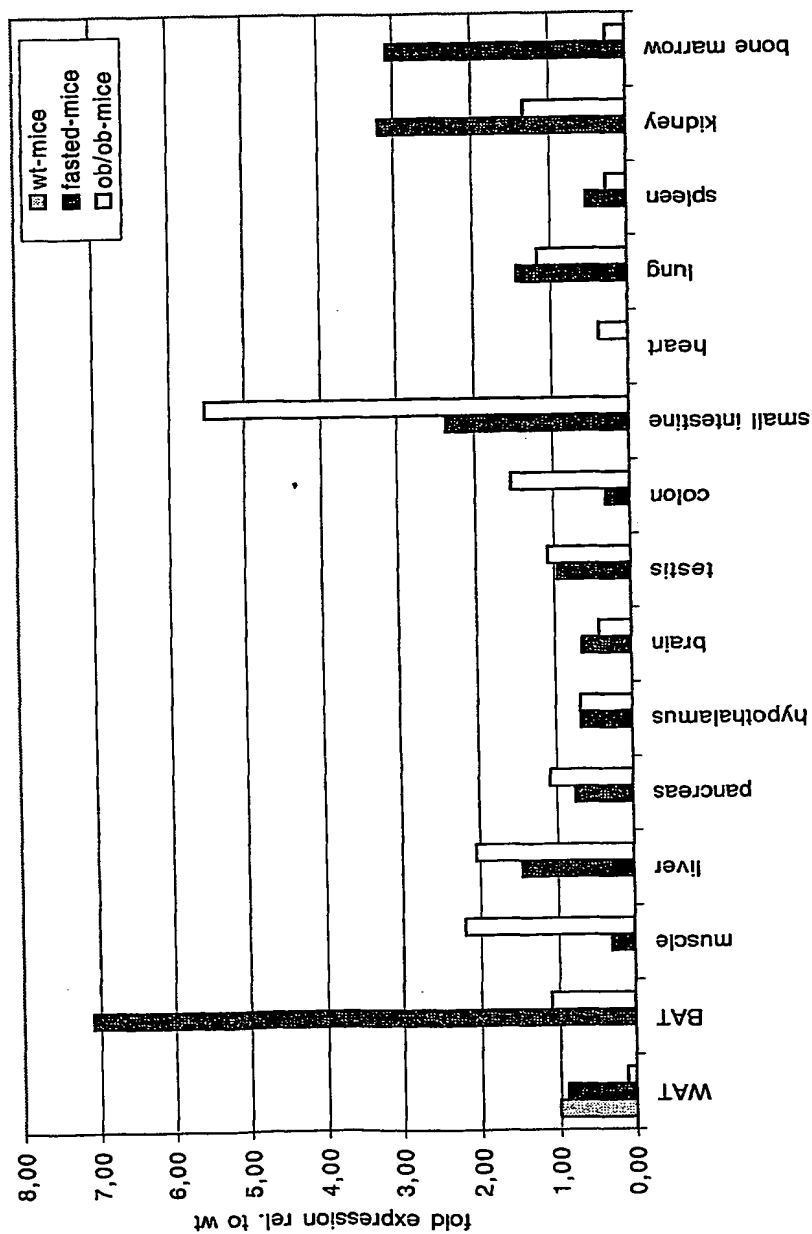


Figure 3K. Real-time PCR analysis of Oaz3 expression in mice fed with a high fat diet compared to mice fed with a control diet

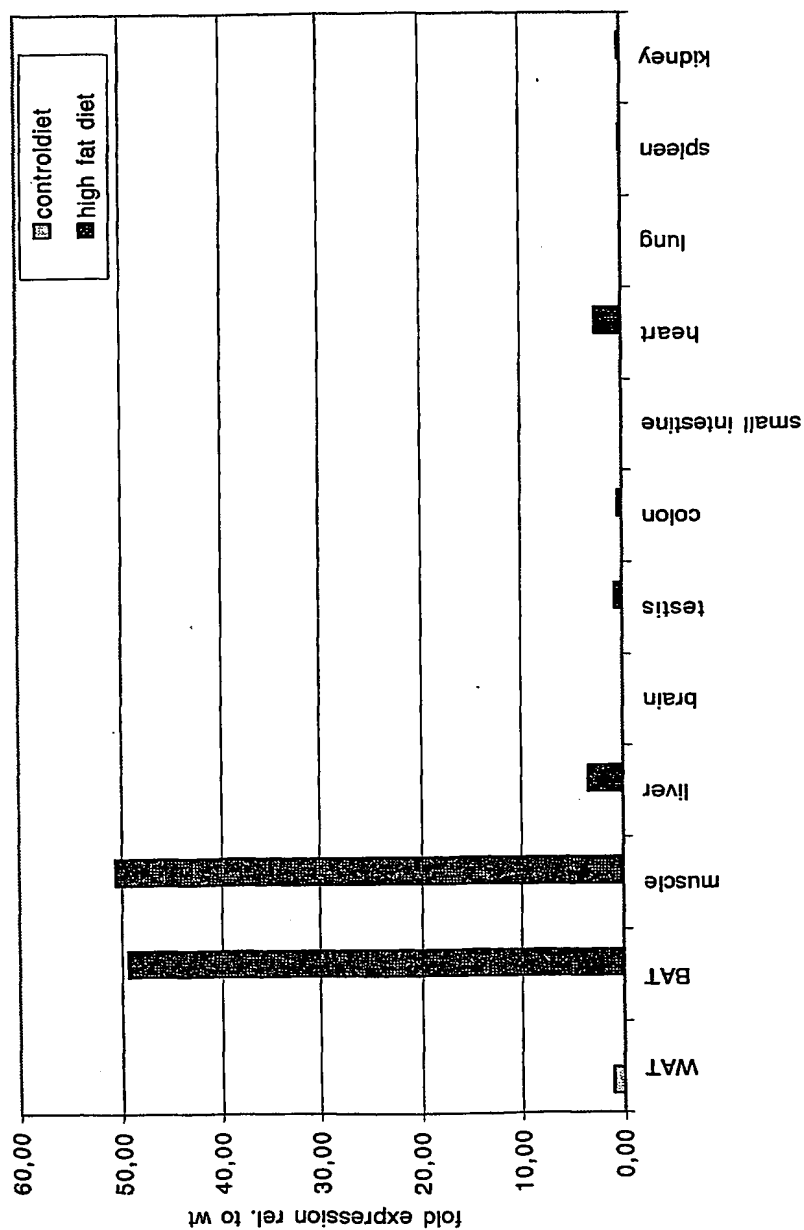


Figure 4. Triglyceride content of a *Drosophila* CG3811 (GadFly Accession Number) mutant

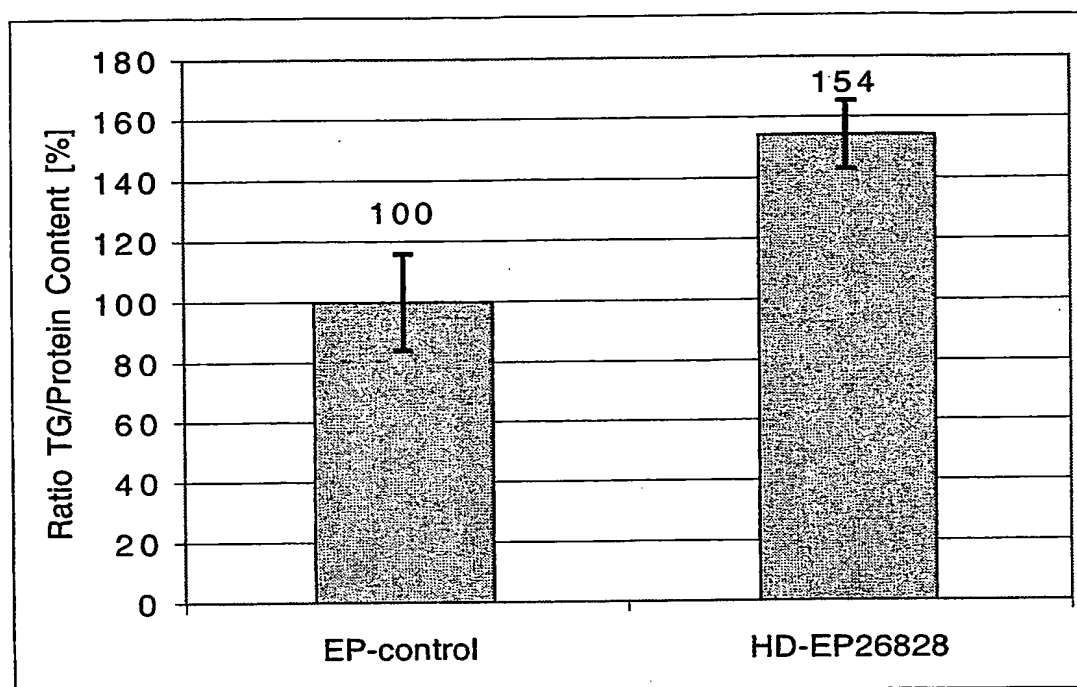


Figure 5. Molecular organization of the CG3811 gene (GadFly Accession Number)

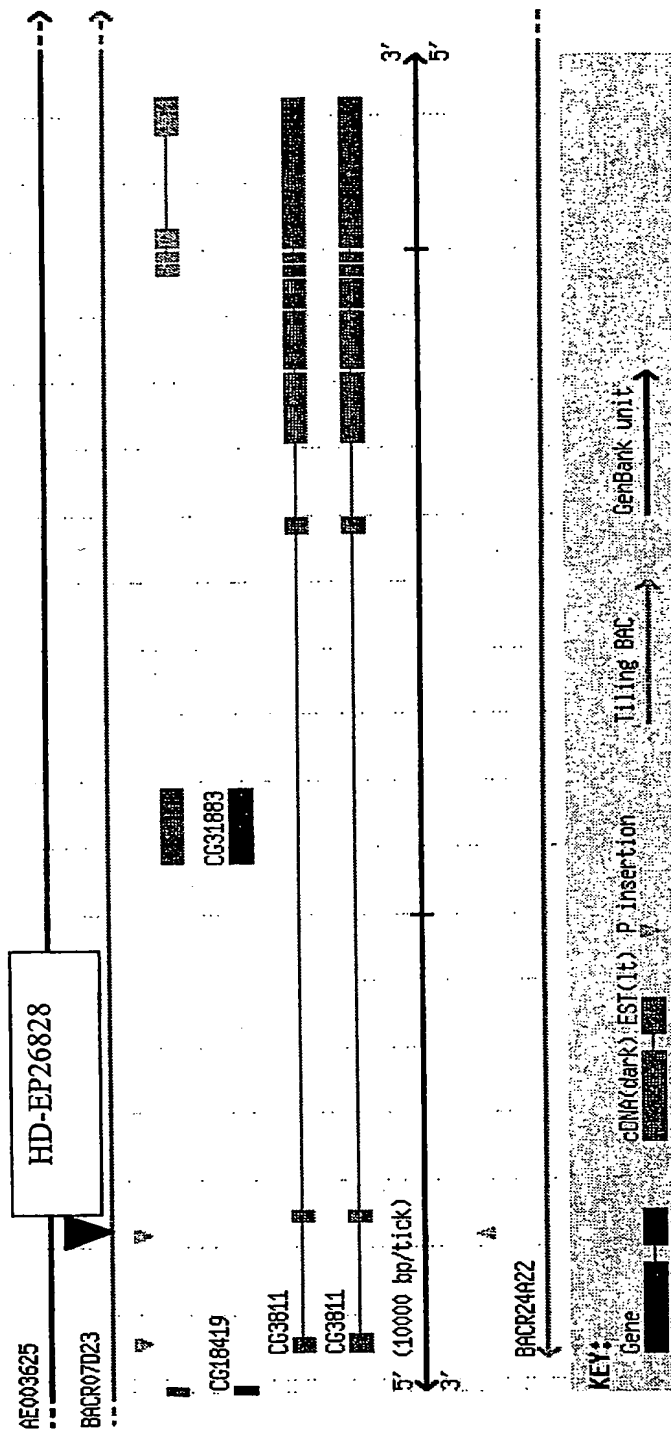


Figure 6. Expression of the CG3811 (GadFly Accession Number) Homolog in Mammalian Tissues

Figure 6A. Real-time PCR analysis of protein similar to organic anion transporter polypeptide-related protein 4 (LOC240726) expression in wild type mouse tissues

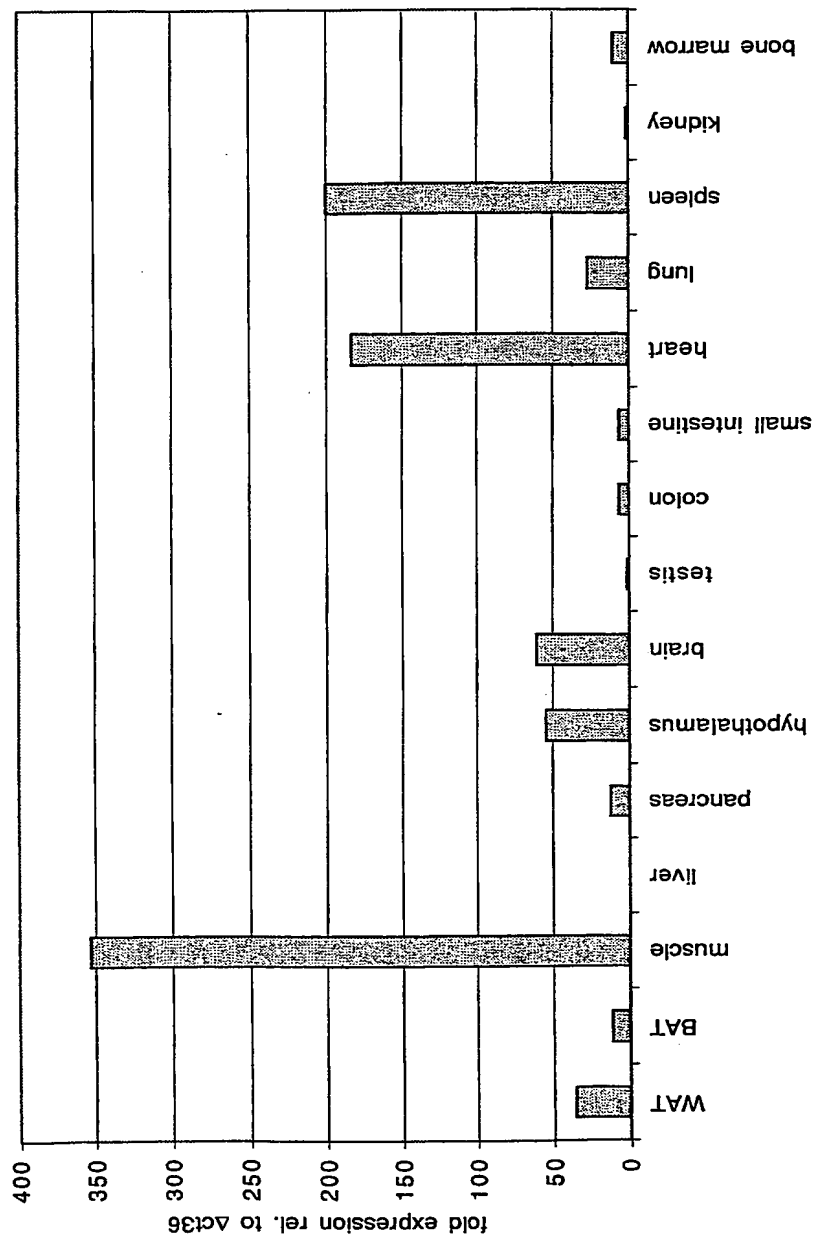


Figure 6B. Real-time PCR analysis of LOC240726 expression in different mouse models

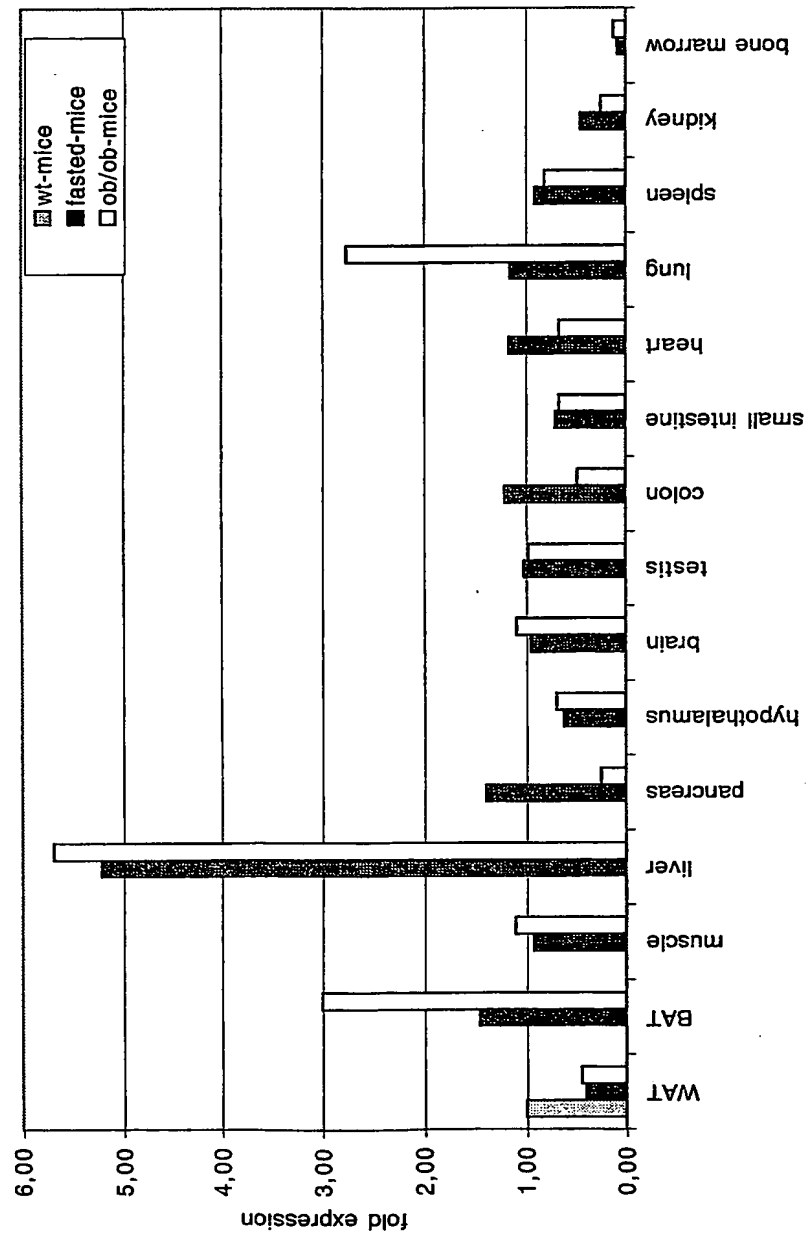


Figure 6C. Real-time PCR analysis of LOC240726 expression in mice fed with a high fat diet compared to mice fed with a control diet

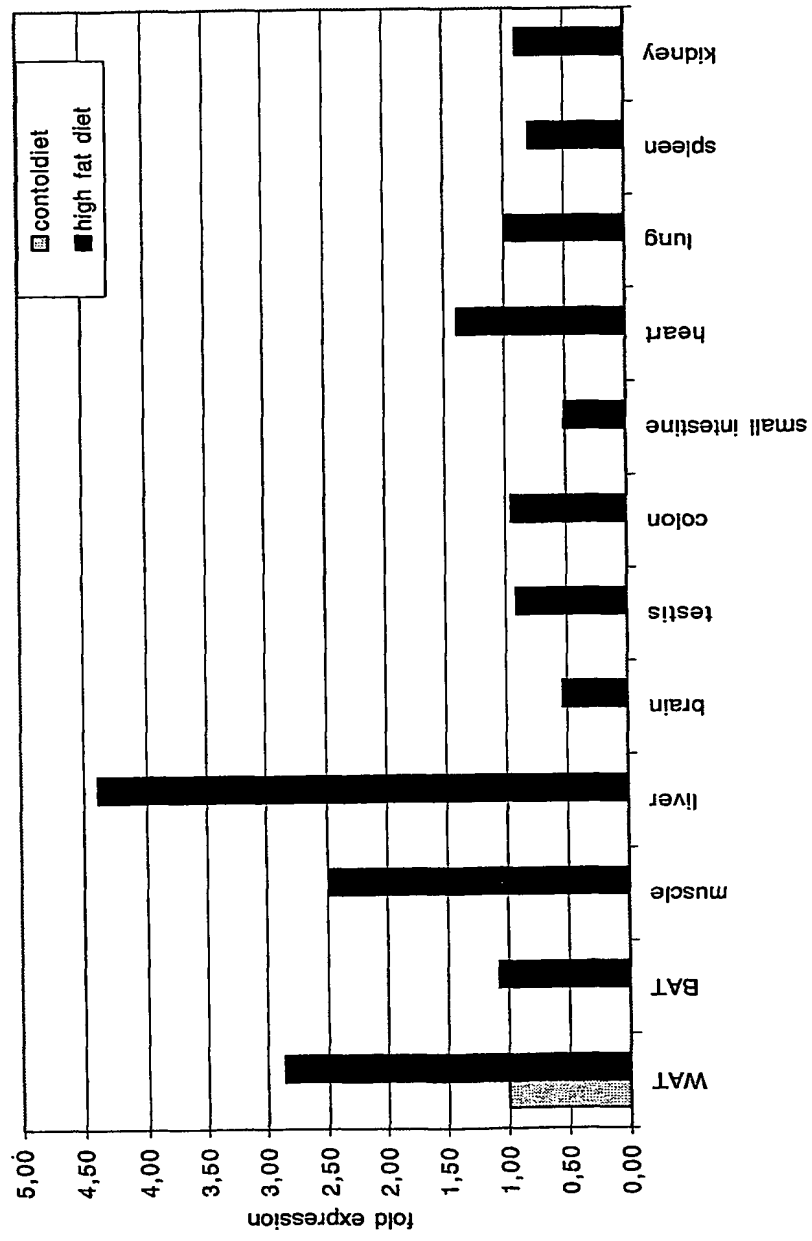


Figure 7. Triglyceride content of a *Drosophila* CG30346 (GadFly Accession Number) mutant

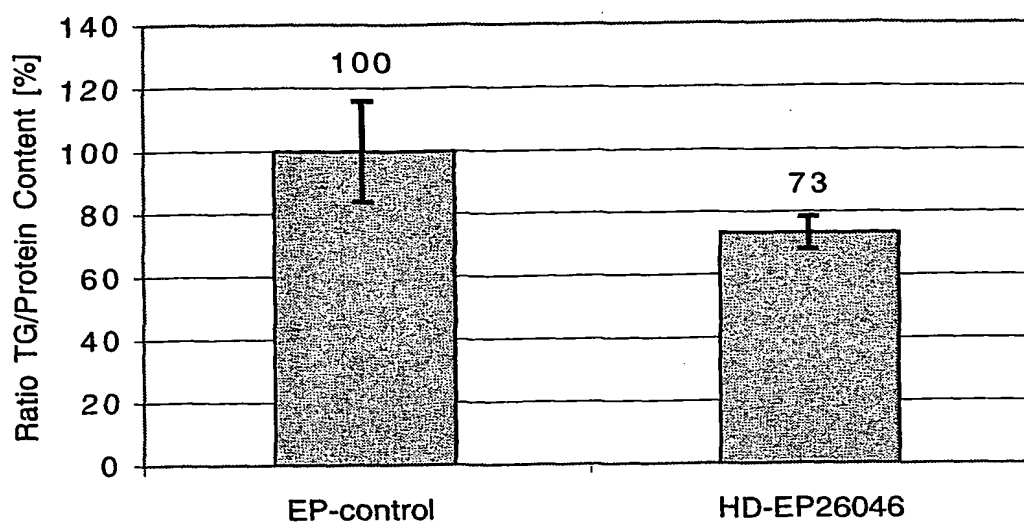


Figure 8. Molecular organization of the CG30346 gene (GadFly Accession Number)

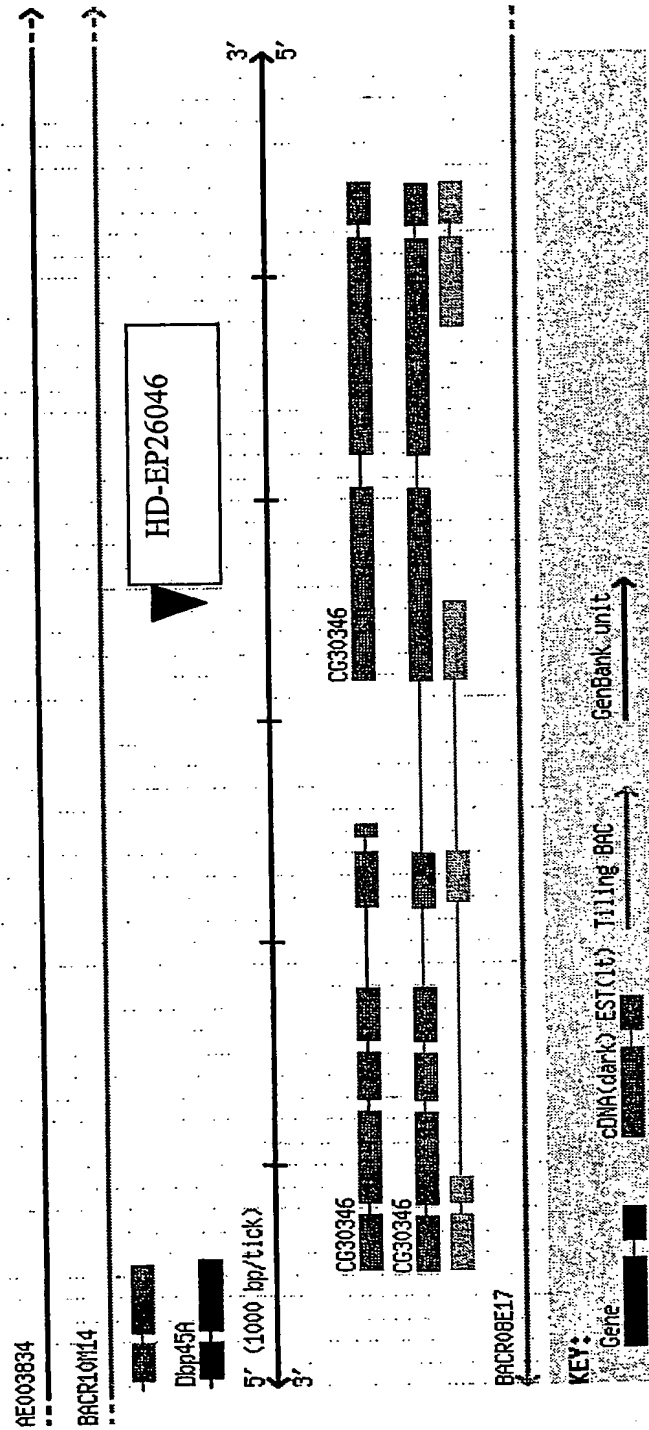


Figure 9. Expression of the CG30346 (GadFly Accession Number) Homolog in Mammalian Tissues

Figure 9A. Real-time PCR analysis of RIKEN cDNA 1110020G09 gene (1110020G09Rik) expression in wild type mouse tissues

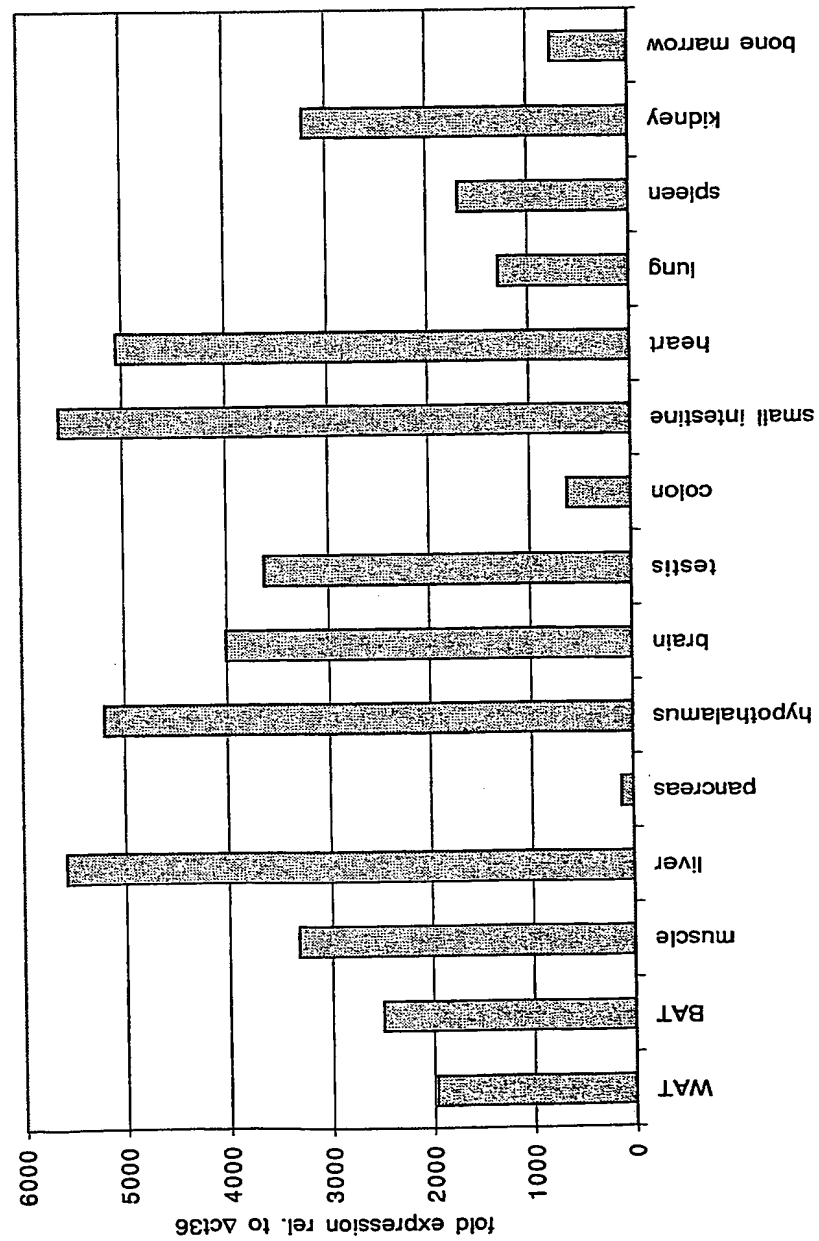
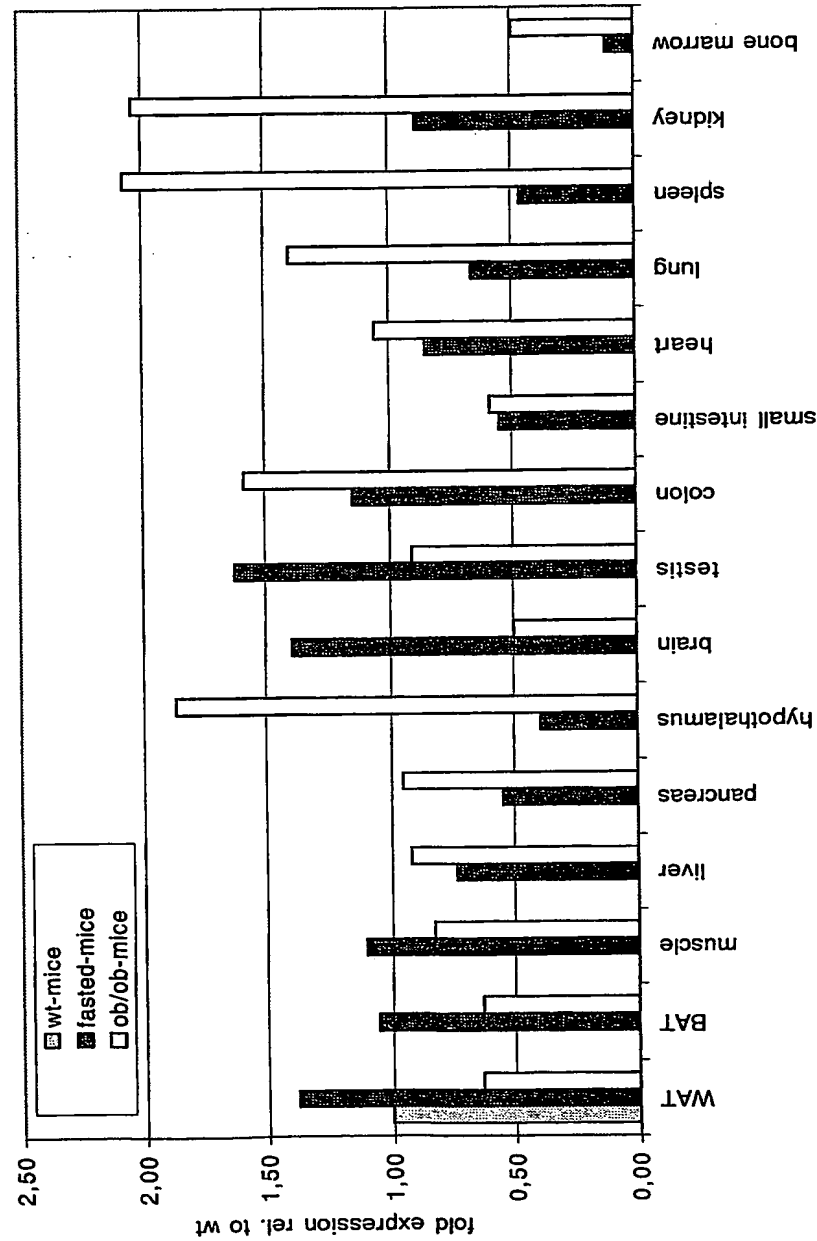


Figure 9B. Real-time PCR analysis of 1110020G09Rik expression in different mouse models



10/531036

Figure 9C. Real-time PCR analysis of 1110020G09Rik expression in 3T3-L1 cells differentiated from preadipocytes to mature adipocytes

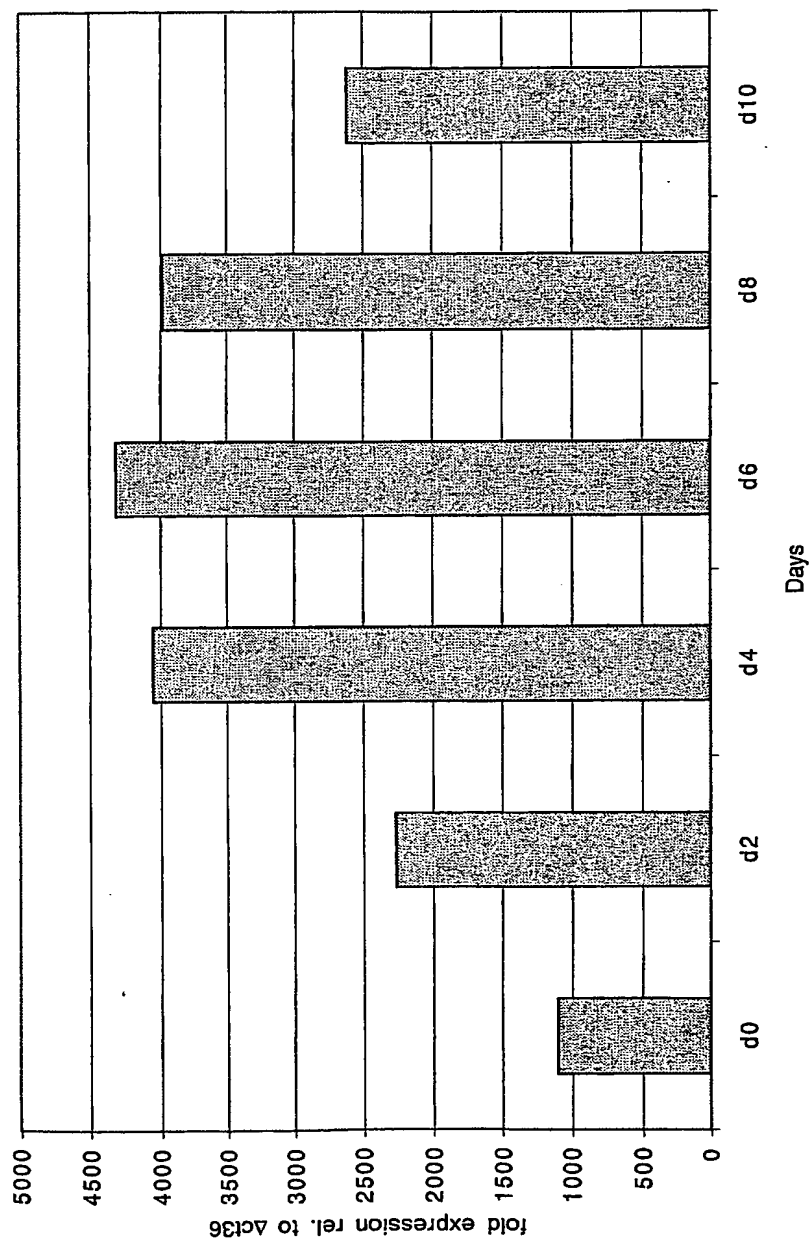


Figure 10. Triglyceride content of a *Drosophila retinal degeneration B* (*rdgB*, GadFly Accession Number CG11111) mutant

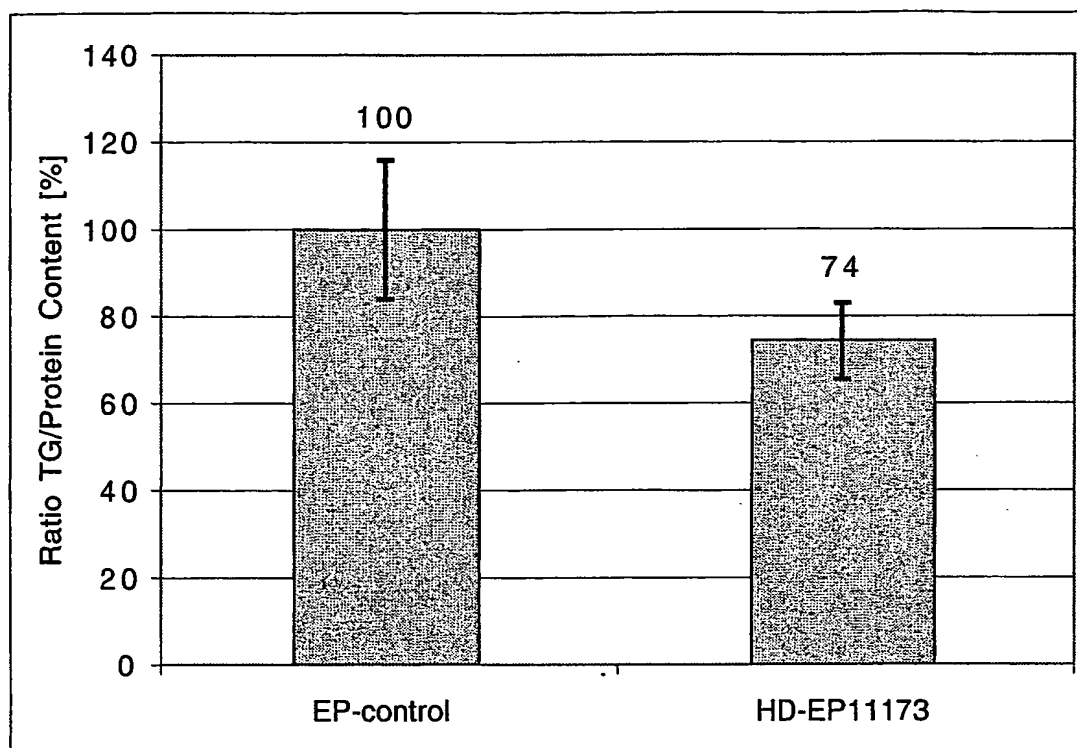


Figure 11. Molecular organization of the retinal degeneration B gene (*rdgB*, GadFly Accession Number CG11111)

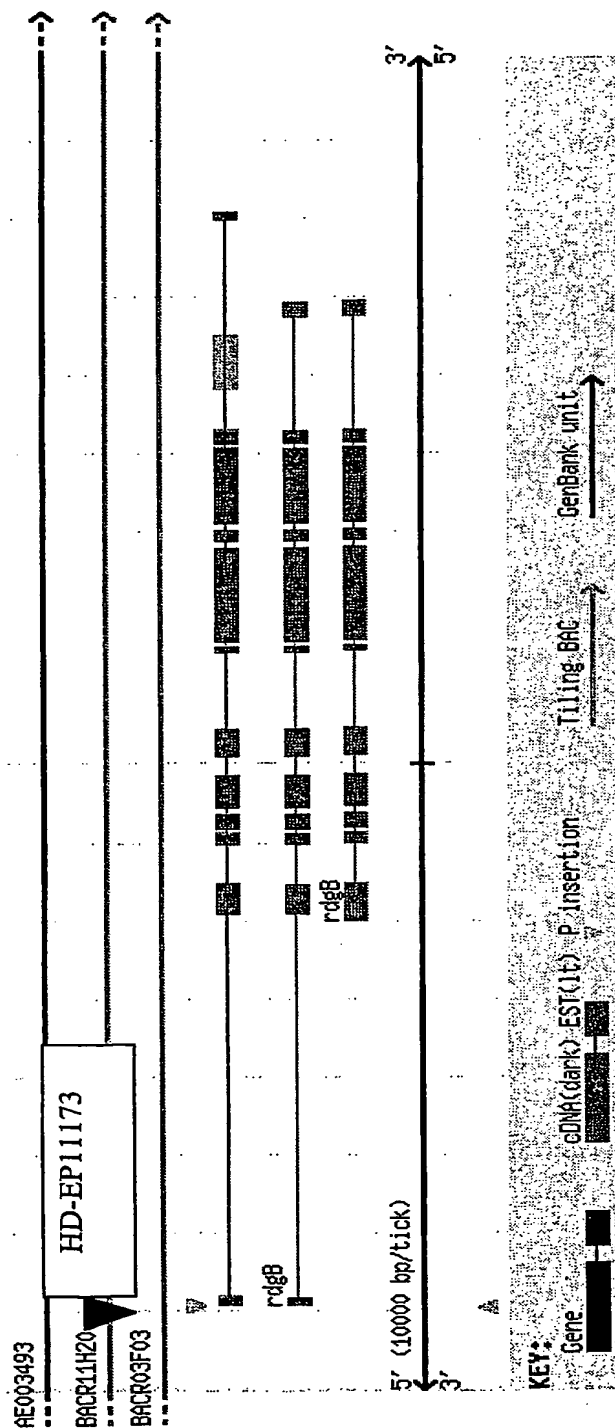


Figure 12. CLUSTAL W (1.82) multiple sequence alignment using the *rdgB* protein sequence:

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NIR1_Hs      -----
PITPNM_Hs    MLIKEYHILLPMSLDEYQVAQLYMIQKKSREESSGEGSGVEILANRPYTDGPGGSGQYTH
CG11111-PB   MLIKEYRIPLPLTVEEYRIAQLYMIAKKSREESHGEGSGVEIINEPYKDGPGGNGQYTK

NIR3_Hs      KVIYHVMHIPS WFRSILPKAALRVVEESWNAYPYTRTRFTCPFVEKFSIDIETFYKTDAG
NIR1_Hs      -----
PITPNM_Hs    KVIYHVGSHIPGWFRALLPKAALQVEEESWNAYPYTRTRYTCPFVEKFSIEIETYYLPDGG
CG11111-PB   KIIYHVG NHLPGWIKSLLPKSALTVEEEAWNAYPYTRTRYTCPFVEKFSLDIETYYYPDNG

NIR3_Hs      ENPDVFNLS PVEKNQLTIDFIDIVKDPVPHNEYKTEEDPKLFQSTKTQRGPLSENWIEEY
NIR1_Hs      -----
PITPNM_Hs    QQPNVFNLSGAERRQRILDTIDIVRDAVAPGEYKAEEDPRLYHSVKTGRGPLSDDWART-
CG11111-PB   YQDNV FQLSGSDLNRNRIVDVIDIVKDQLWGGDYVKEEDPKHFVSDKTGRGPLAEDWLEEY

NIR3_Hs      KKQVF-----PIMCAYKLCKVEFRYWGMQSKIERFIHDTGLRRVMVRAHRQAWCW
NIR1_Hs      -----
PITPNM_Hs    AAQTG-----PLMCAYKLCKVEFRYWGMQAKIEQFIHDVGLRRVMLRAHRQAWCW
CG11111-PB   WREVKGKKQPTPRNMSLMTAYKICRVEFRYWGMQTKLEKFIHDVALRKMMMLRAHRQAWAW

NIR3_Hs      QDEWYGLSMENIRELEKEAQLMLSRKMAQFNEDGEEATEL-----VKHEAVSDQ-----
NIR1_Hs      -----
PITPNM_Hs    QDEWTELSMADIRALEEETARMLAQRMAKNTGSEGSEAQPPGKPSTEARSAASN-----
CG11111-PB   QDEWFGLTIEDIRELERQTQLALAKKMGGECSDDSVSEPYVSTAATAASTTGSRKKKS

NIR3_Hs      -----TSGEPPPEPSSSN--GEPLVGRGLKKQWSTSSKSSRSSKRGASPSRH-----
NIR1_Hs      -----AGGPPP-----GGGAP-----
PITPNM_Hs    -----TGTPDGPEAPPG--PDASPDASFQKQWSSSSRSSYSSQHGGAVSPQ-----
CG11111-PB   APAVPPIVTQPPSAEASSDEEGEEEDDDDEDENDAIGTGVDLSANQGGSAQRSRSQSIO

NIR3_Hs      -----SISEWRMQSIARDSDESSDDEFFDAHEDLSDTEEM
NIR1_Hs      -----WHLRNVLSDSVESSDDEFFDAREEMAEGKNA
PITPNM_Hs    -----SLSEWRMQNIARDSSENSSEEEFFDAHEGFSDEEV
CG11111-PB   MAQKGKFGSKGALHSPVGSASHSFDLQVANWRMERLEVDKSNSEEFFDCLDTNETNSLA

NIR3_Hs      FPKDITKWSSNDLMDKIESPEPEDTQDG-----LYRQGAPEFRVASSV--EQLN-
NIR1_Hs      ILIGMSQWNSNDLVEQIETMGKLDEHQEGTAPCTSSILQEKQRELYRVSLRR--QRFP
PITPNM_Hs    FPKEMTKWNSNDFIDAFASP---VEAEG-----TPEPGAEEAAKGIEDG--AQAPR
CG11111-PB   KWSLLELLGEGDDSPPHGGPSSAASVGGRGNSRQEDSIFNQDFLMRVASERGNKRQLRS

NIR3_Hs      ----IIEDEVS--QPLAAPP SKIHVLLLVLHGGTILDTGAGDPSSKKGDANTIANVFDTV
NIR1_Hs      QGSIEIHEDSE--EGCPQRSCKTHVLLLVLHGGNILD TGAGDPSCKAADIHTFSSVLEKV
PITPNM_Hs    D---SEGLDGA--GELGAEACAVHALFLILHSGNILD SGPGDANSKQADVOTLSSAFEAV
CG11111-PB   SASVDRSHDSSPPGSPSTPSCPTTILILVVHAGSVLDAAS-ELTAKKSDVTTFRGSFEAV

NIR3_Hs      MRVHYP SALGRLAIRLVPCPPVCSDAFALVSNLSPYSHDEGCLSSSQD--HIPLAALPL
NIR1_Hs      TRAHFPAALGHILIKFVPCPAICSEAFSLVSHLNPYSHDEGCLSSSQD--HVPLAALPL
PITPNM_Hs    TRIHFPEALGHVALRLVPCPPICAAAYALVSNLSPYSHDGDLSRSQD--HIPLAALPL
CG11111-PB   MRQHYP SLLTHVTIKMVPCPSICTDALGILSSLSPYSF DASP SAADIPNIADVPIGA IPL

NIR3_Hs      LATSSPQYQEA VATVIQRANLAYGDFIKSQEGMTFNGQVCLIGDCVGGILAFDALCYSNQ
NIR1_Hs      LAISSPQYQDA VATVIERANQVYREFLKSSDGIGFSGQVCLIGDCVGGLLAFDAICY SAG
PITPNM_Hs    LATSSSRYQGA VATVIARTNQAYS AFLRSP EGAGFCGQVALIGDGVGGILGFDALCHSAN
CG11111-PB   LSVASPEFHETV NKTVA AANIVYHEFLKSEEGHGFSGQIVMLGDSMGSLLAYEALCRSNG

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NIR3_Hs PVSES-QSSSRGVSVMQDNDLLSPGILMNAAHCCGGGGGGGGGGSSGGGGSSGGSSL
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 PITPNM_Hs AGTGS-RGSSRRGSMNNELLSPEFG-----PVRDPLA
 CG11111-PB SQPGTASGASNSGGDAATN-----I

NIR3_Hs ESSRHLSRSNVDIPRSNGTEDPKRQLPRKRSDSSTYELDTIQHQAFLLSSLHASVLRTEP
 NIR1_Hs ASSKRLSKSNIDISSGLEDEEPPKRLPRKQSDSSTYDCEAITQHHAFLSSIHSSVLKDES
 PITPNM_Hs DGVEGLGRGSPEPS-----ALPPQRI PSDMASPEPEGSQNSLQAAPATTSSWEPRRSTA
 CG11111-PB NTHNPLSPRN-----SRLDDDERFIEADLDAKRLLVAPSPRRRSS

NIR3_Hs CSRHSSSSTMLDGTGALGRFDFEITDLFLFGCPLGLVLALRKTVIPALDVFQLRPACQOV
 NIR1_Hs ETPAAGGPQLPEVS--LGRFDFDVSDFFLFGSPLGLVLAMRRTVLPGLDGFQVRPACSQV
 PITPNM_Hs FCPPAASSEAPDGPSSTARLDFKVSGFFLFGSPLGLVLALRKTVMPALEAAQMRPACQOI
 CG11111-PB SSDSRAT-----KLD FEVCDFFMFGSPLSVVLAARK--LHDAKAALPRPNCHQV

NIR3_Hs YNLFHPADPSASRLEPLLERRFHALPPFSVPRYQRYPLGDGCSTLLADVLQTHNAAFQEH
 NIR1_Hs YSFFHCADPSASRLEPLLEPKFHLVPPVSVPRYQRFPLGDGQSLLLADALHTHSPLFLEG
 PITPNM_Hs YNLFHAADPCASRLEPLLAPKFQAIAPLTVPRYQKFPLGDGSSLLADTLQTHSSLFLEE
 CG11111-PB YNLFHPTDPIASRLEPLLSARFSILAPVNVPRYAKYPLGNGQPLHLLLEVIQSHPOHFNDG

NIR3_Hs GAPSSPGTAPASRGFRASEISIASQVSGMAESYTASSIAQKAPDALSHTPSVRRLSLLA
 NIR1_Hs SSRDSPPLLDAPASPPQASRFQRPGRRMSEGSSHSES---SESSDSMAPVGASR-----
 PITPNM_Hs LEMLV PSTPTSTSG-----AFWKGSELATDPPAQPAAP--STTSEVVK-----
 CG11111-PB NNLLAGRRLSDASMQSTISGLIENVSLSTIHA-----

NIR3_Hs LPAPSPTTPGPHPPARKASPGLERAPGLPELDIGEVAAKWWGQKRIDYALYCPDALTAFF
 NIR1_Hs -----ITAKWWGSKRIDYALYCPDVLTAFF
 PITPNM_Hs -----ILERWWGTKRIDYSLYCPALTAFF
 CG11111-PB -----LQNKWWGTKRLDYALYCPGLSNFP

NIR3_Hs TVALPHLFHASYWESTDVVSFLLRQVMRHD-NSSILELDGKEVSVFTPSKPREKWQRKRT
 NIR1_Hs TVALPHLFHASYWESTDVVAFILRQVMRYE-SVNIKESARLDPAALSPANPREKWLKRRT
 PITPNM_Hs TVTLPHLFHASYWESADVAFILRQVIEKE-RPQLAECE--EPSIYSPAFPREKWQRKRT
 CG11111-PB AHALPHLFHASYWESPDVIAFILRQIGKFEGIPFVGSNDDKDNASFHPGQPREKWIKKRT

NIR3_Hs HVKLRNVTANHRINDALANEDGPQVLTGRFMYGPLDMVTLTGEKVDVHIMTQPPSGEWLY
 NIR1_Hs QVKLRNVTANHRANDVIAAEDGPQVLVGRFMYGPLDMVALTGEKVDILVMAEPSSGRWVH
 PITPNM_Hs QVKIRNVTSNHRASDTVCEGRPQVLSGRFMYGPLDVTLTGEKVDVYIMTQPLSGKWIH
 CG11111-PB SVKLKNVAANHRANDVIVQEGREQRLNARFMYGPLDMITLHGEKVDVHIMKDPPAGEWTF

NIR3_Hs LDTLVTNNSGRVSYTIPESHRLGVGVPIKMVVRGDHTFADSYITVLPKGTEFVVF SIDG
 NIR1_Hs LDTEITNSSGRITYNVPRPRRLGVGVYPVKMVVRGDQTCAMSYLTVLPRGMECVVFSIDG
 PITPNM_Hs FGTEVTNSSGRLTFPVPPERALGIGVYPVRMVVRGDHTYAECCLTTVARGTEAVVFSIDG
 CG11111-PB LSTEVTDKNGRISYSIPDQVSLGYIYPVKMVVRGDHTSVDCYMAVVPPLTECVVFSIDG

NIR3_Hs SFAASVSIMGSDPKVRAGAVDVVRHWQDLGYLIIYVTGRPDMQKQRRVVAWLASHNFPHGVS
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 PITPNM_Hs SFTASVSIMGSDPKVRAGAVDVVRHWQDSGYLIVYVTGRPDMQKRRVVAWLASHNFPHGVS
 CG11111-PB SFTASMSVTGRDPKVRAGAVDVCRHWQELGYLLIYITGRPDMQQRVVSVWLSQHNFPHGL

NIR3_Hs VSFCDLVHDPLRHKANFLKLLISELHLRVHAAYGSTKDVAVYSAISLSPMQIYIVGRPT
 NIR1_Hs IFFSDGLVHDPLRQKAIFLRNLMQECFIKISAAYGSTKDISVSVLGLPASQIFIVGRPT
 PITPNM_Hs VSFCDLTHDPLRQKAMFLQSLVQEVGLNIVAGYGS PKDVAVYTALGLSPSQTYIVGRAV
 CG11111-PB ISFADGLSTDPLGHKTAYLNNLVQNHGISITAAYGSSKDISVYTNVGMRTDQIFIVGKVG

NIR3_Hs KKLQQQCQFITDGYAAHLAQLKYSHRRARPNTATRMALRKGSFGLPGQGDFLRSRNHLL

NIR1_Hs KKYQTQCQFLSEGYAAHLAVLEASHRSRPKKNNS-RMILRKGSFGLHAQPEFLRKRNHLR
PITPNM_Hs RKLQAQCQFLSDGYVAHLGQLEAGSHSHASSGPP-RAALGKSSYGVAAPVDFLRKQSOLL
CG11111-PB KKLQSNATVLSDGYYAAHLAQLQAVGGSRPAKGNA-RMVI PRGCFNLPQQTANPRRR----

NIR3_Hs RTISAQ---PSGPPSHRHERTQSQADGEQRGQSMSVAAGCWGRAMTGRLEPGAAAGPK
NIR1_Hs RTMSVQQPDPPAANPKPERAQSQPESDKDHERPLPALS--WARGPP-KFESVP-----
PITPNM_Hs R-----SRGPSQAERE GPGTPTTLARG-KARSISLKLDSEE-----
CG11111-PB -----RLHEQATNEN-----

Figure 13. Expression of the *rdgB* (GadFly Accession Number CG11111) Homolog in Mammalian Tissues

Figure 13A. Real-time PCR analysis of phosphatidylinositol membrane-associated (Pitpm) expression in wild type mouse tissues

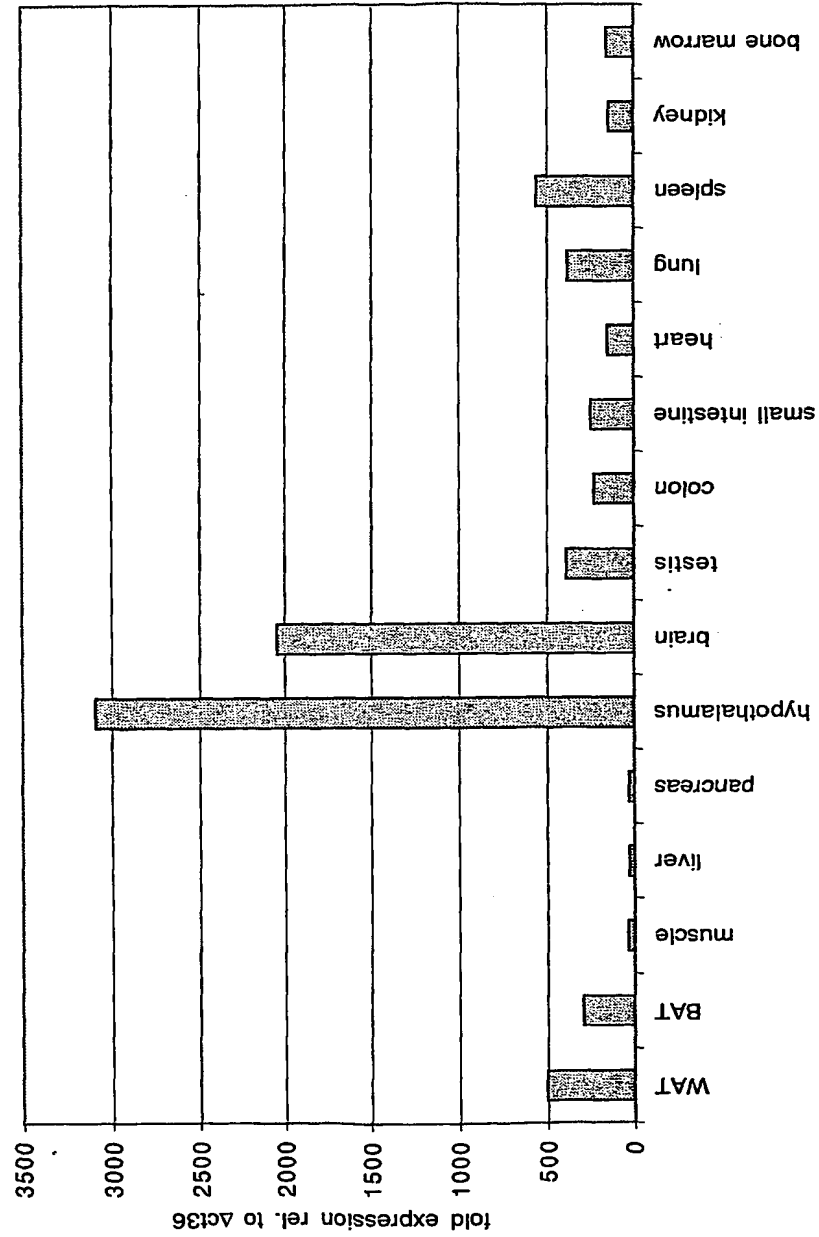


Figure 13B. Real-time PCR analysis of Pitpnm expression in different mouse models

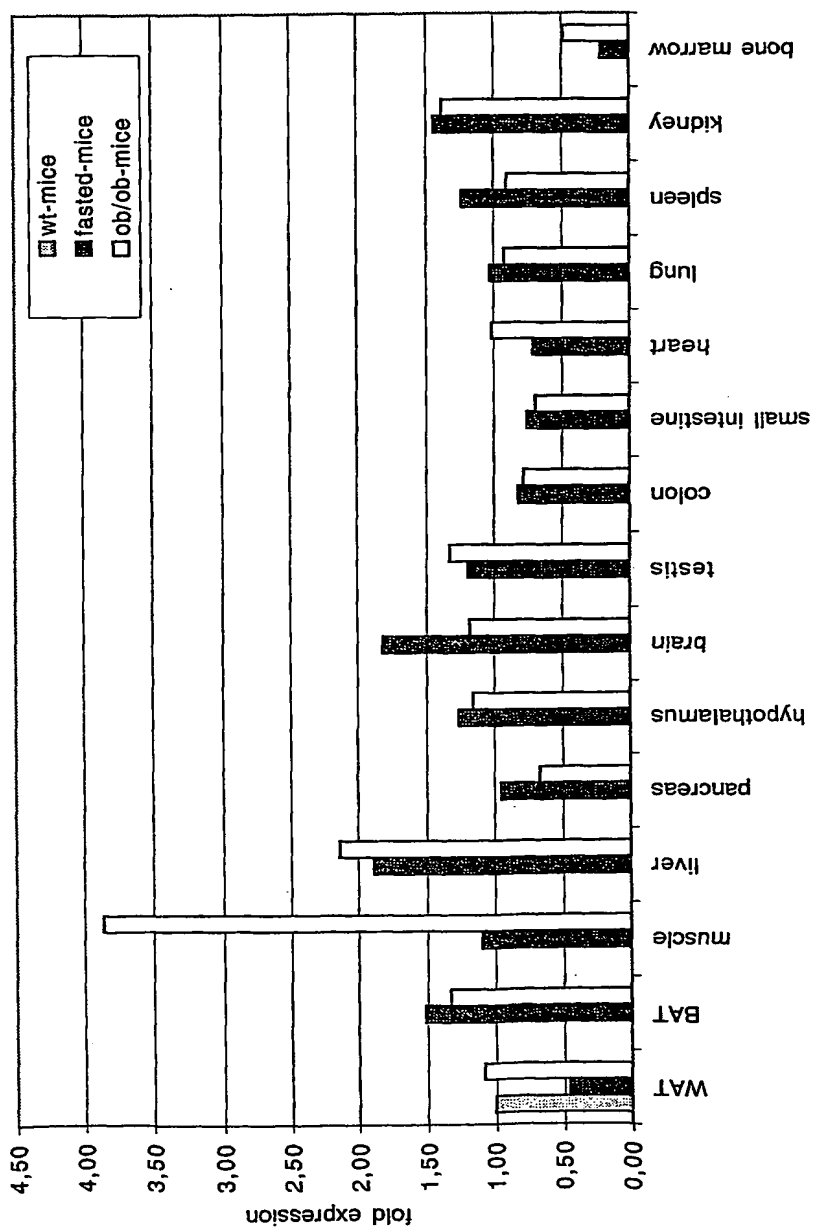


Figure 13C. Real-time PCR analysis of Pitpnm expression in mice fed with a high fat diet compared to mice fed with a control diet

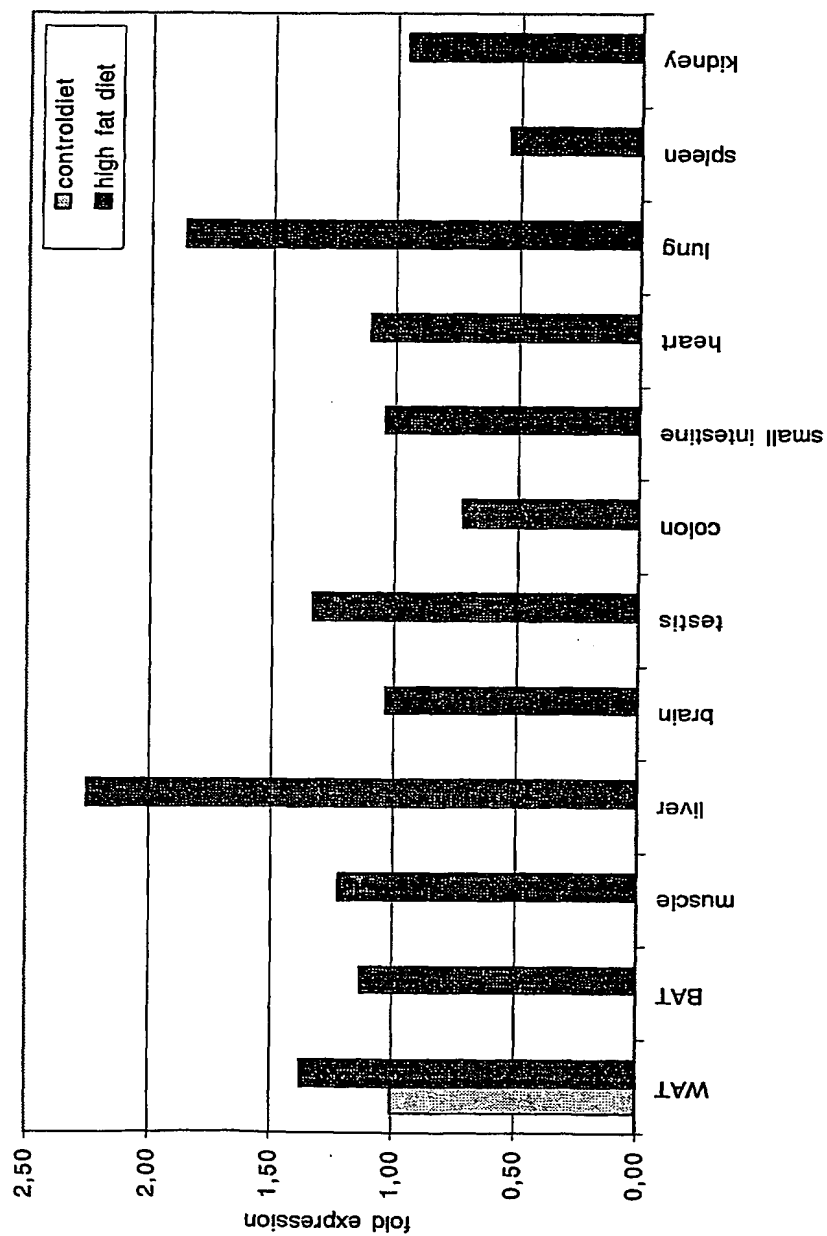


Figure 13D. Real-time PCR analysis of Pitpnm expression in 3T3-L1 cells differentiated from preadipocytes to mature adipocytes

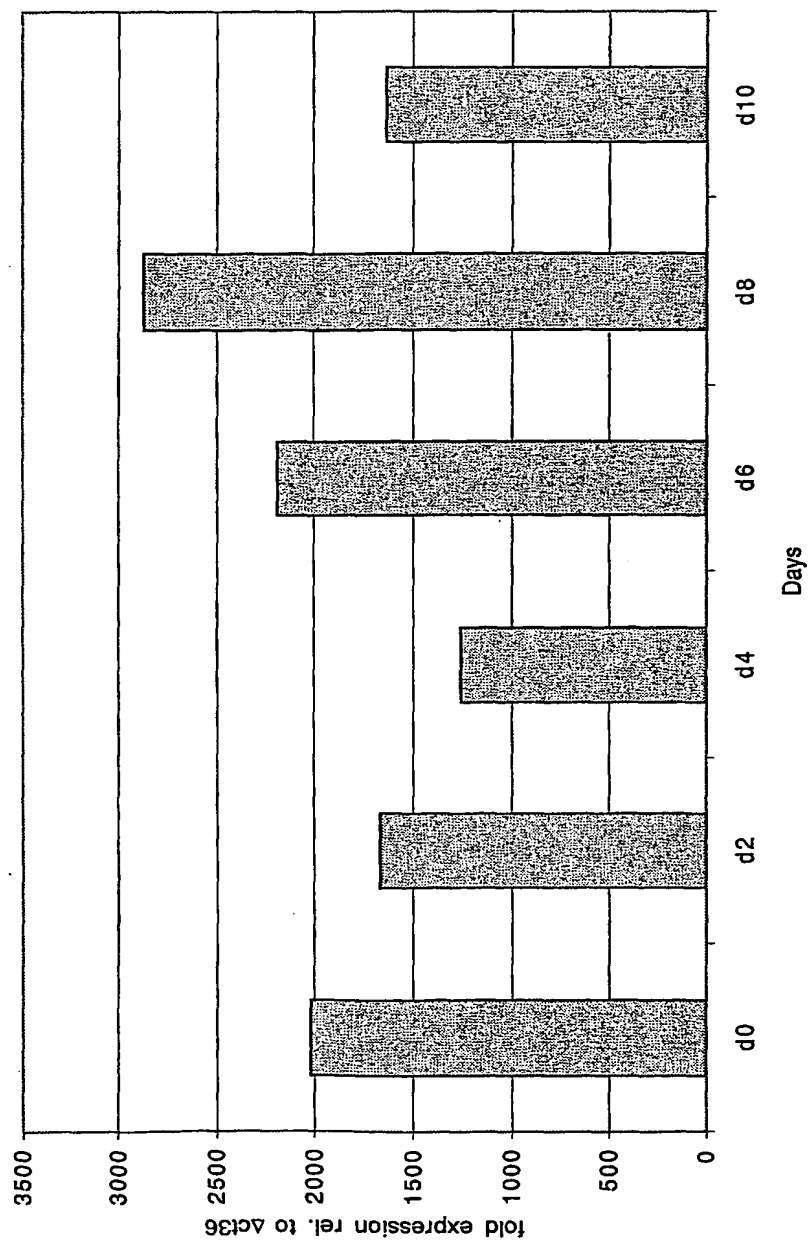


Figure 13E. Real-time PCR analysis of retinal degeneration B2 homolog (*Drosophila*) (*Rdgb2*) expression in wild type mouse tissues

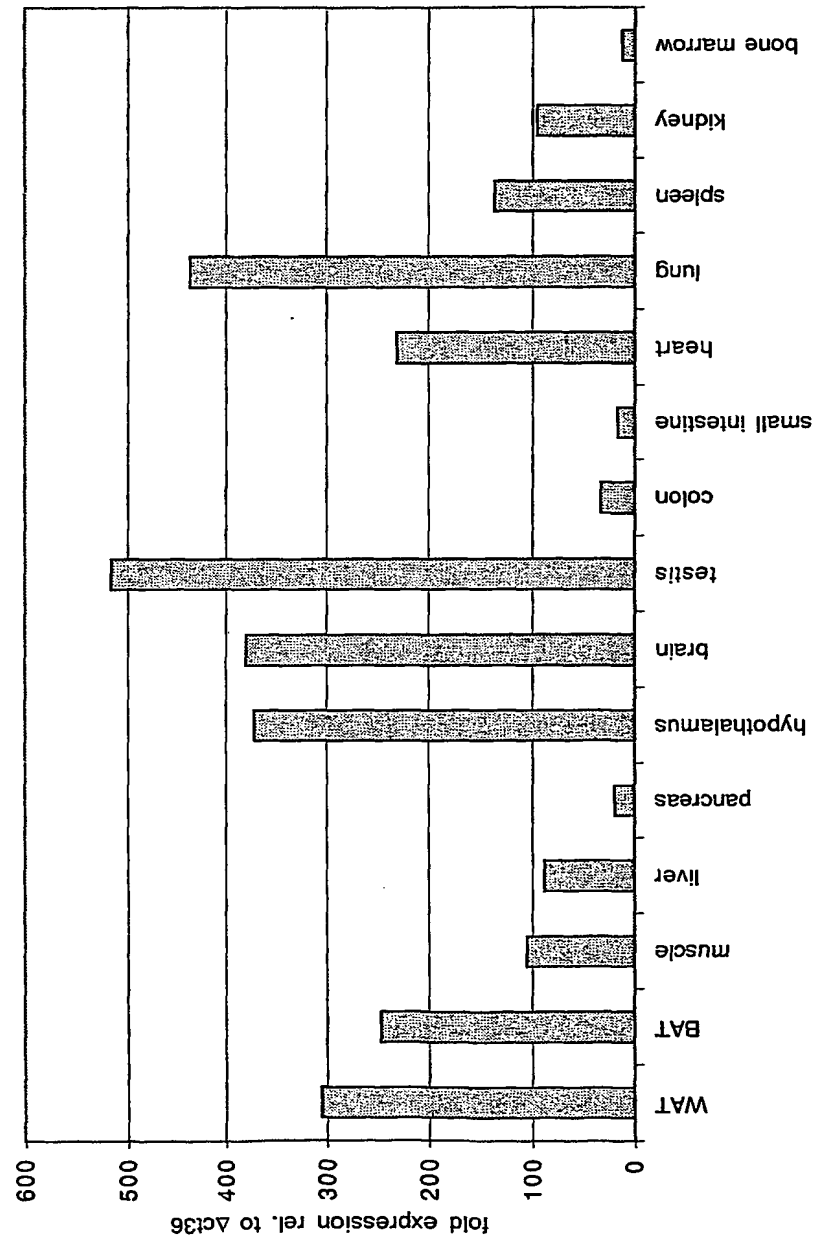


Figure 13F. Real-time PCR analysis of Rdgb2 expression in different mouse models

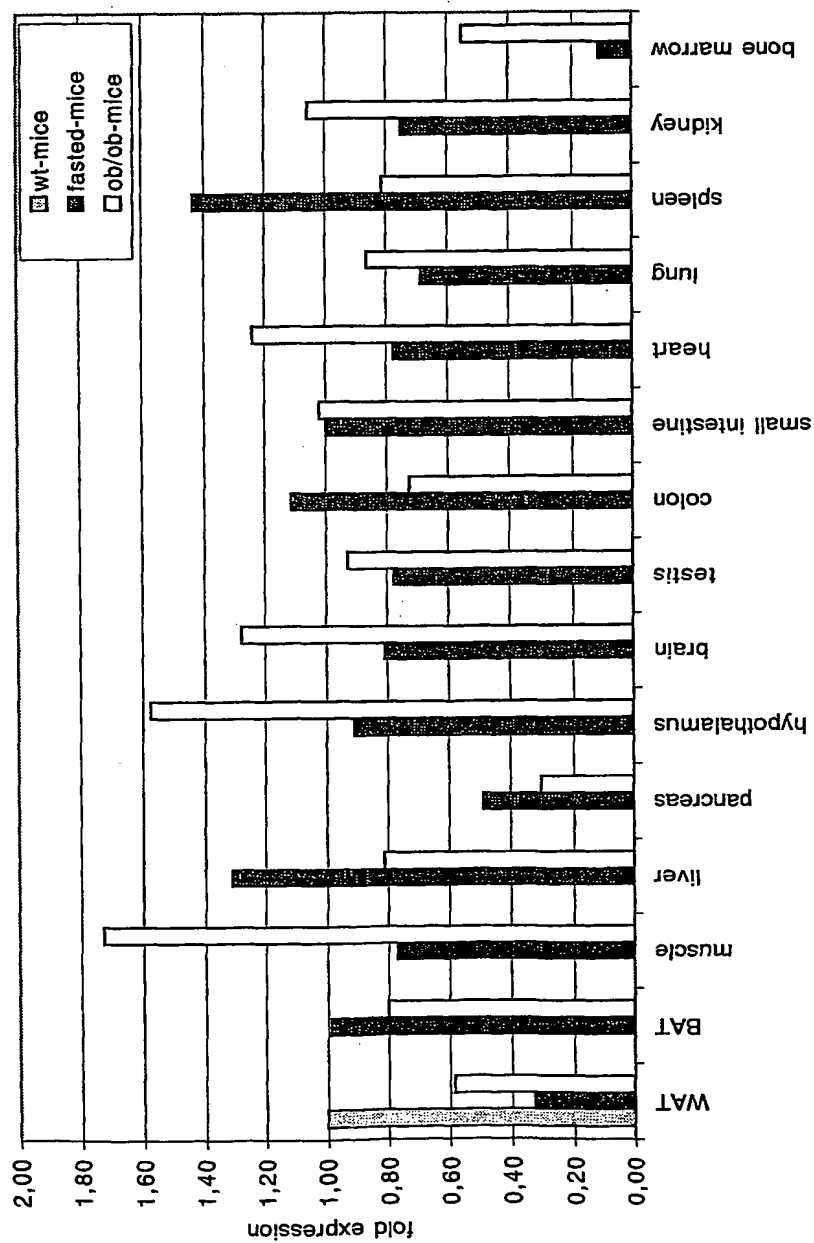


Figure 13G. Real-time PCR analysis of Rdgb2 expression in 3T3-L1 cells differentiated from preadipocytes to mature adipocytes

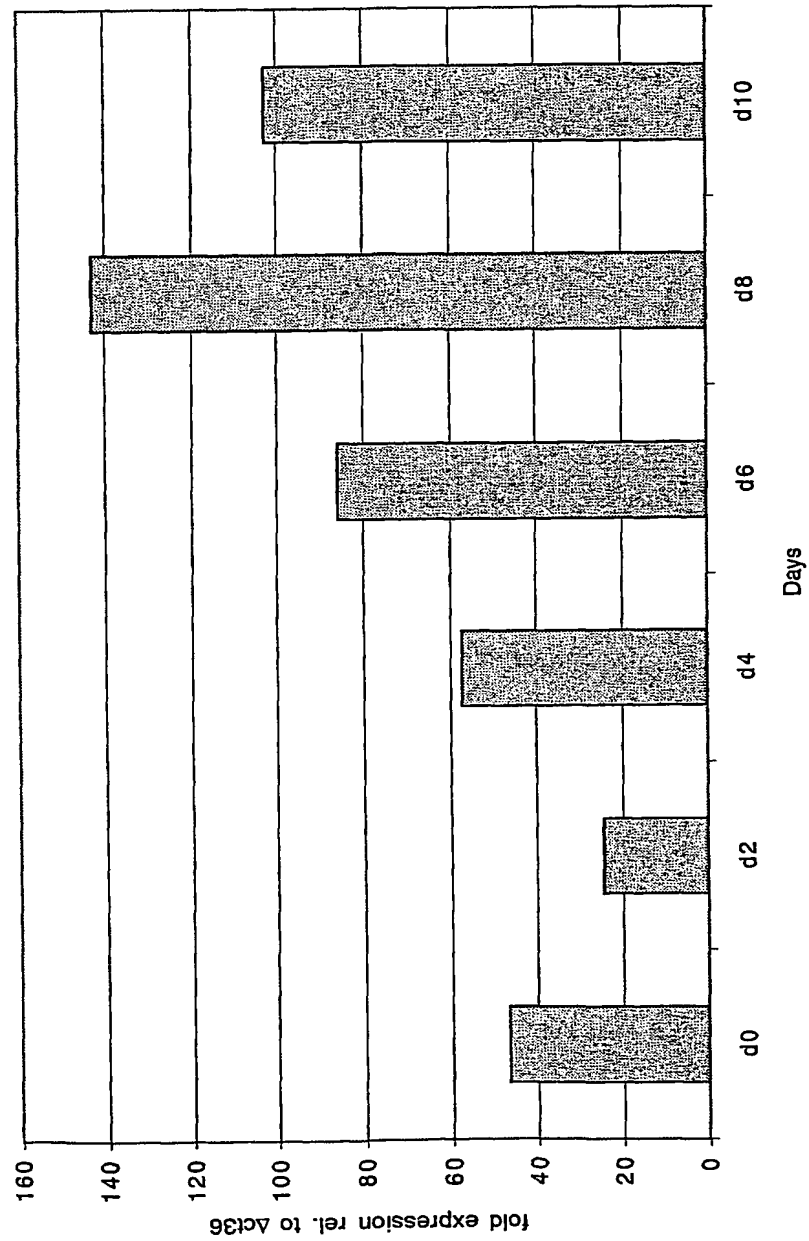


Figure 13H. Real-time PCR analysis of similar to PYK2 N-terminal domain-interacting receptor 1 (LOC216884) expression in wild type mouse tissues

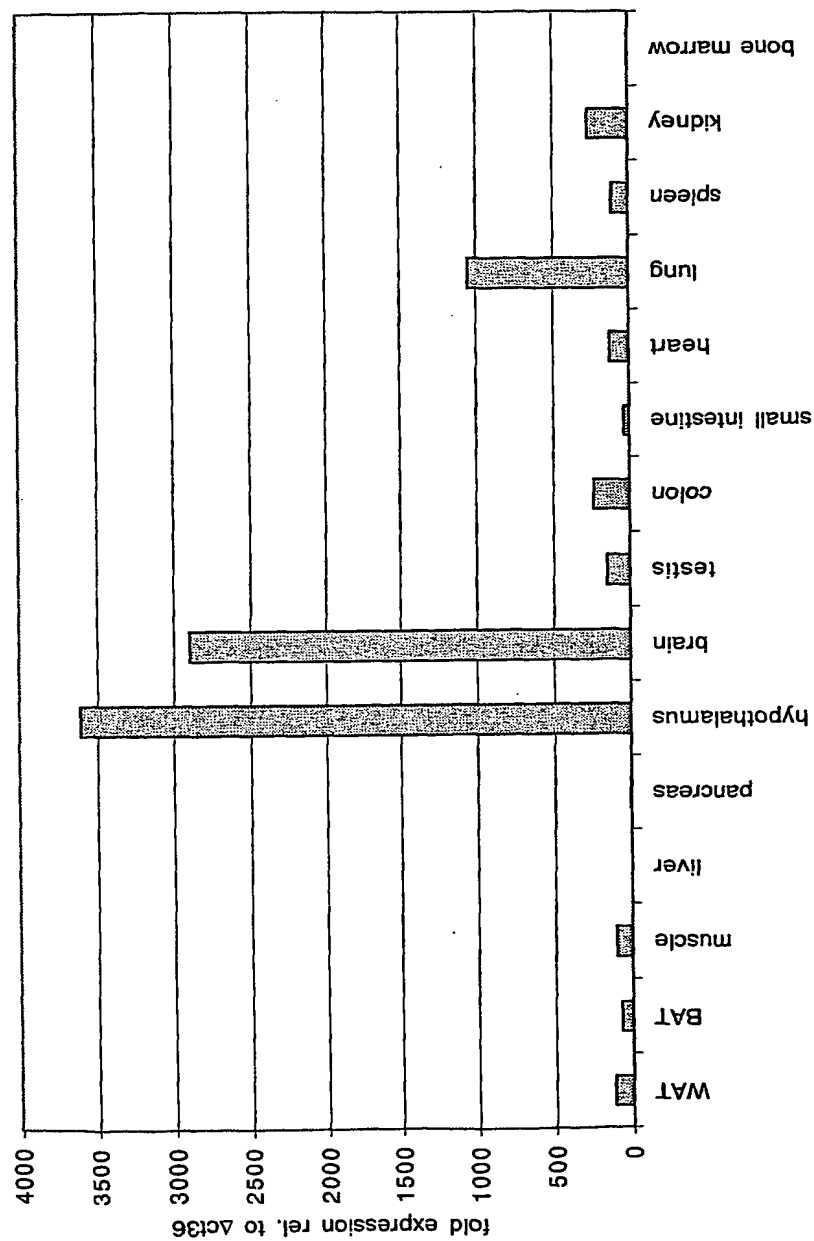
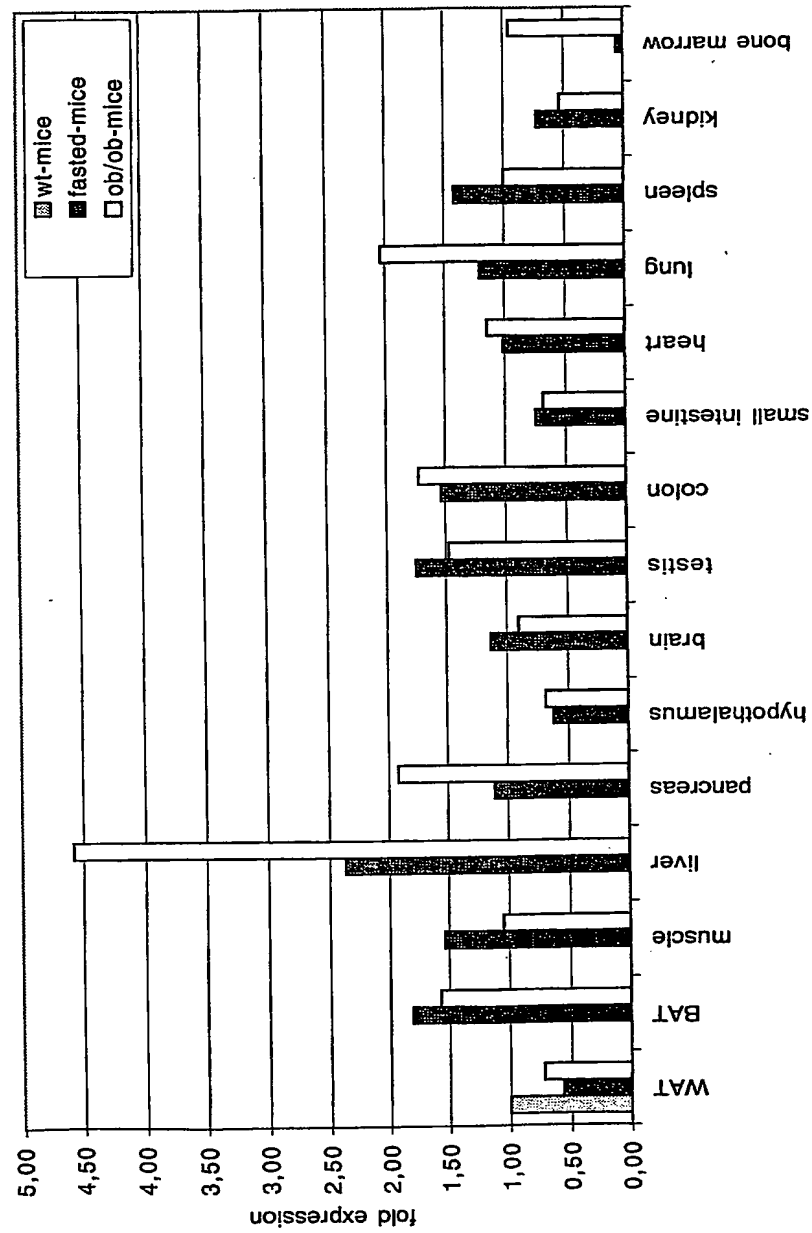


Figure 13L. Real-time PCR analysis of LOC216884 expression in different mouse models



10/551056

Figure 13J. Real-time PCR analysis of LOC216884 expression in mice fed with a high fat diet compared to mice fed with a control diet

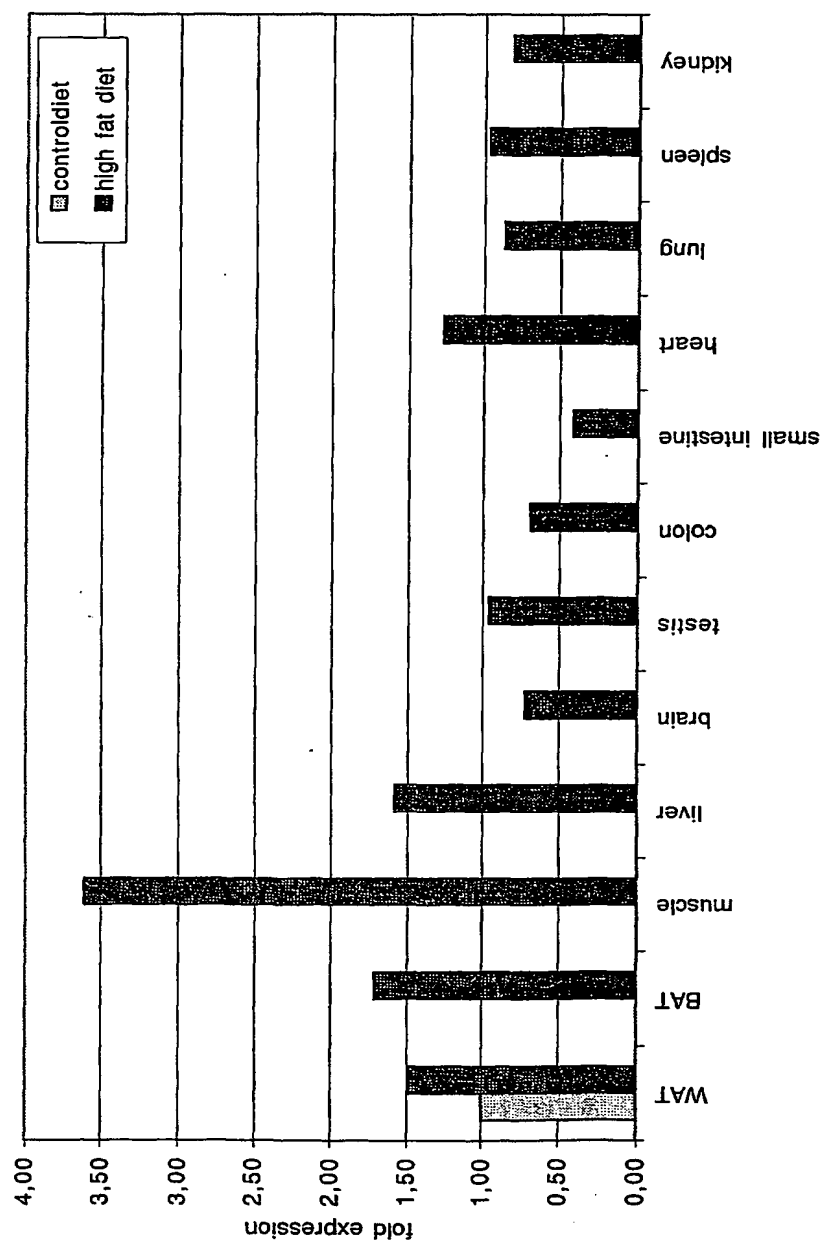


Figure 14. Triglyceride content of a *Drosophila Mekk1* (GadFly Accession Number CG7717) mutant

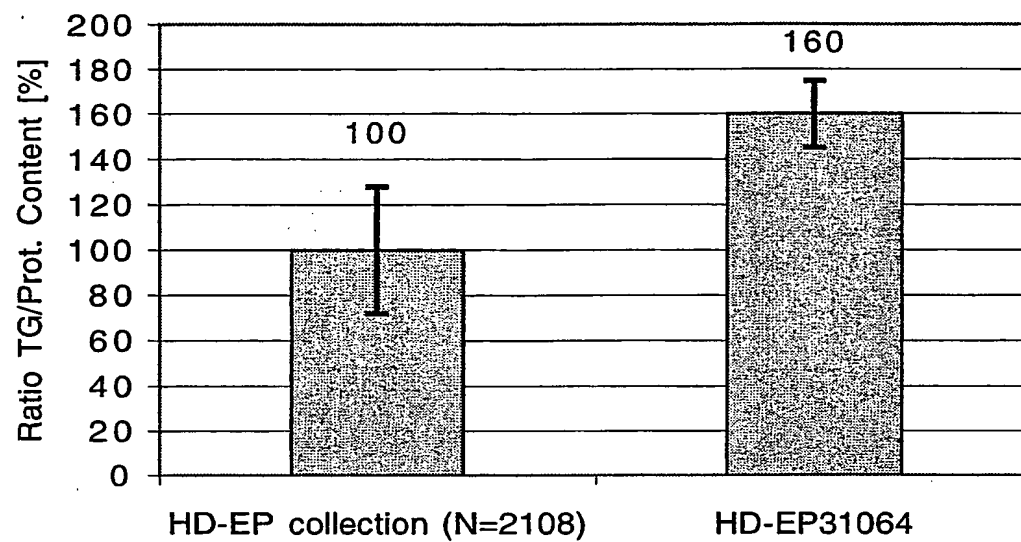


Figure 15. Molecular organization of the *Mekk1* gene (GadFly Accession Number CG7717)

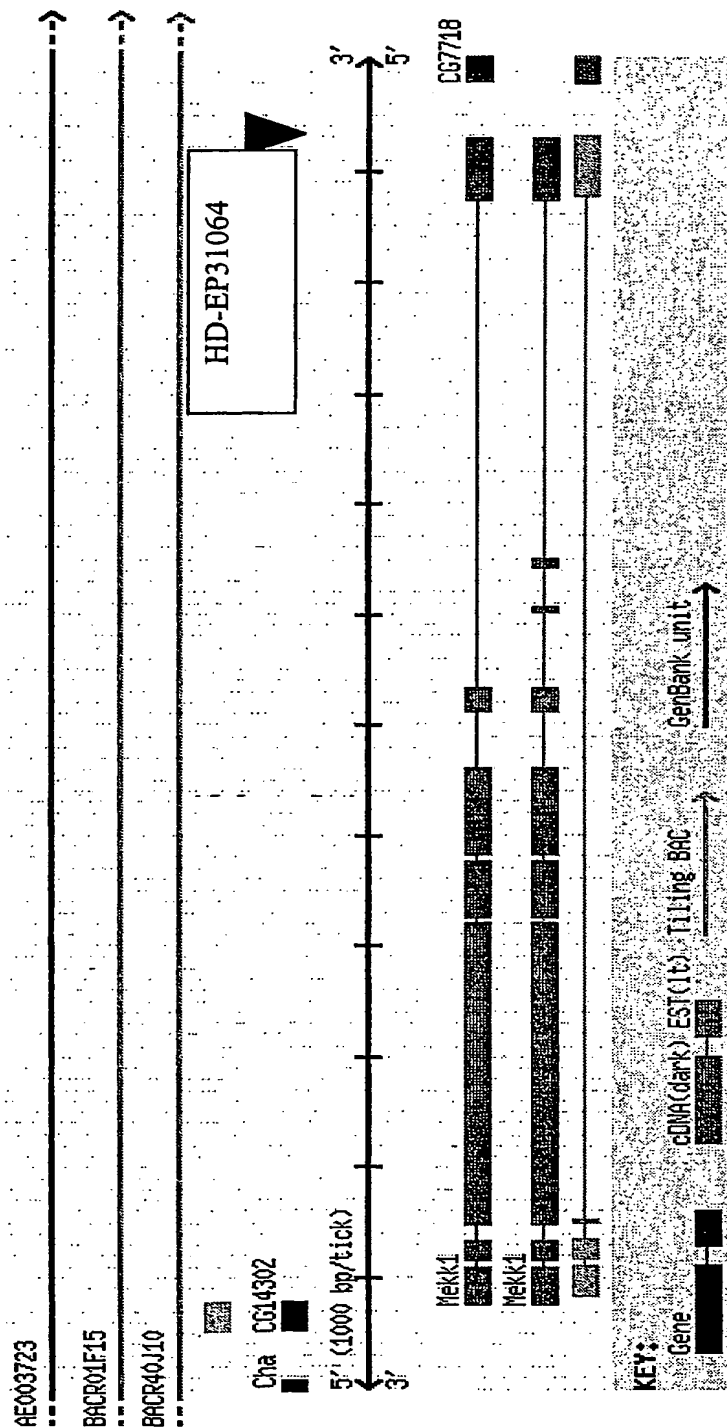


Figure 16. Expression of a *Mekk1* (GadFly Accession Number CG7717) Homolog in Mammalian Tissues

Figure 16A. Real-time PCR analysis of mitogen activated protein kinase kinase 4 (Map3k4) expression in wild type mouse tissues

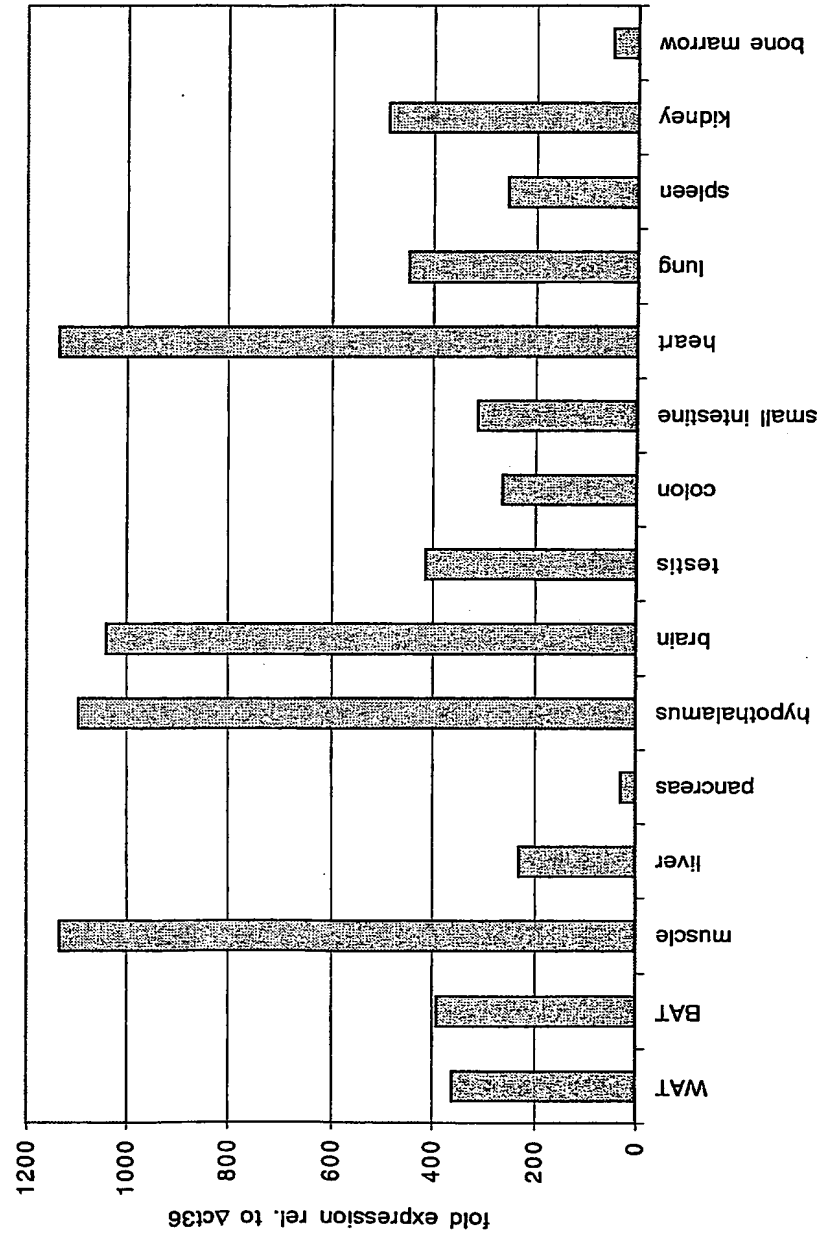


Figure 16B. Real-time PCR analysis of Map3k4 expression in different mouse models

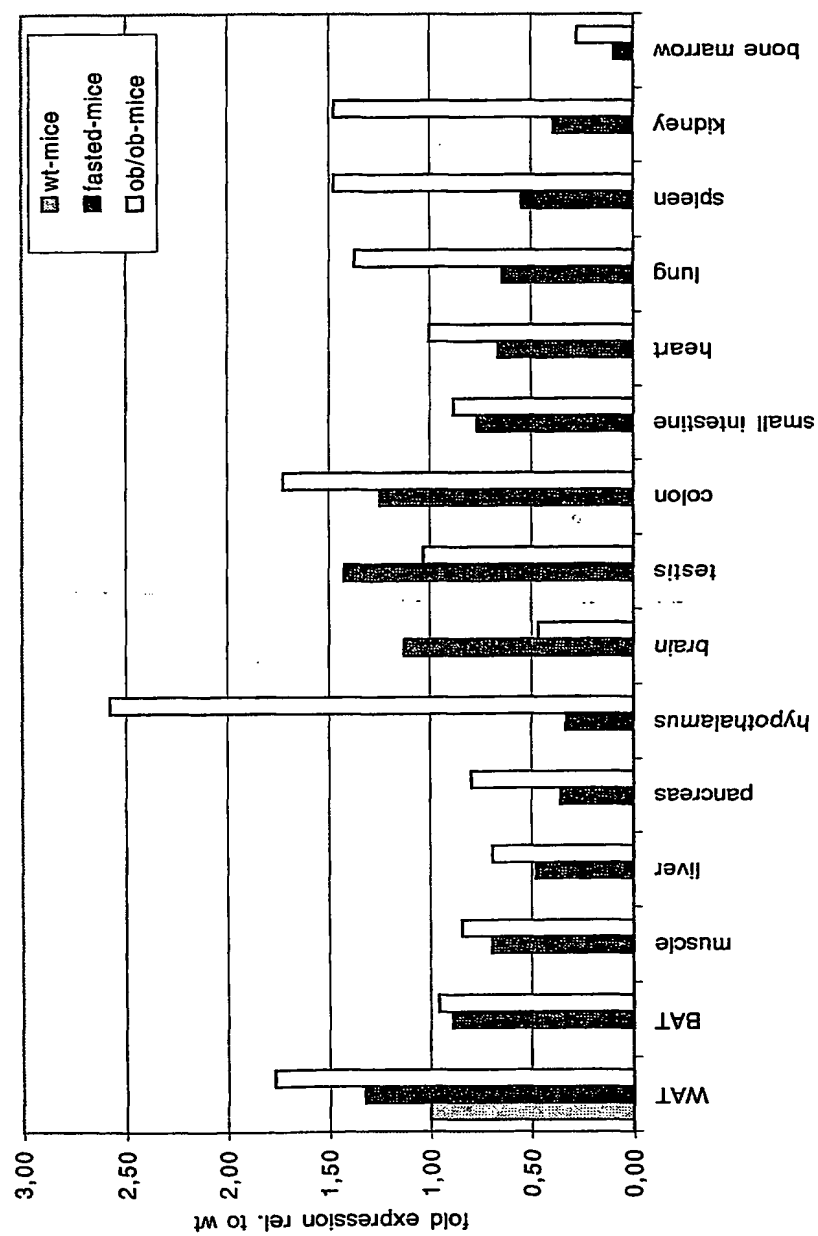


Figure 16C. Real-time PCR analysis of Map3k4 expression in 3T3-L1 cells differentiated from preadipocytes to mature adipocytes

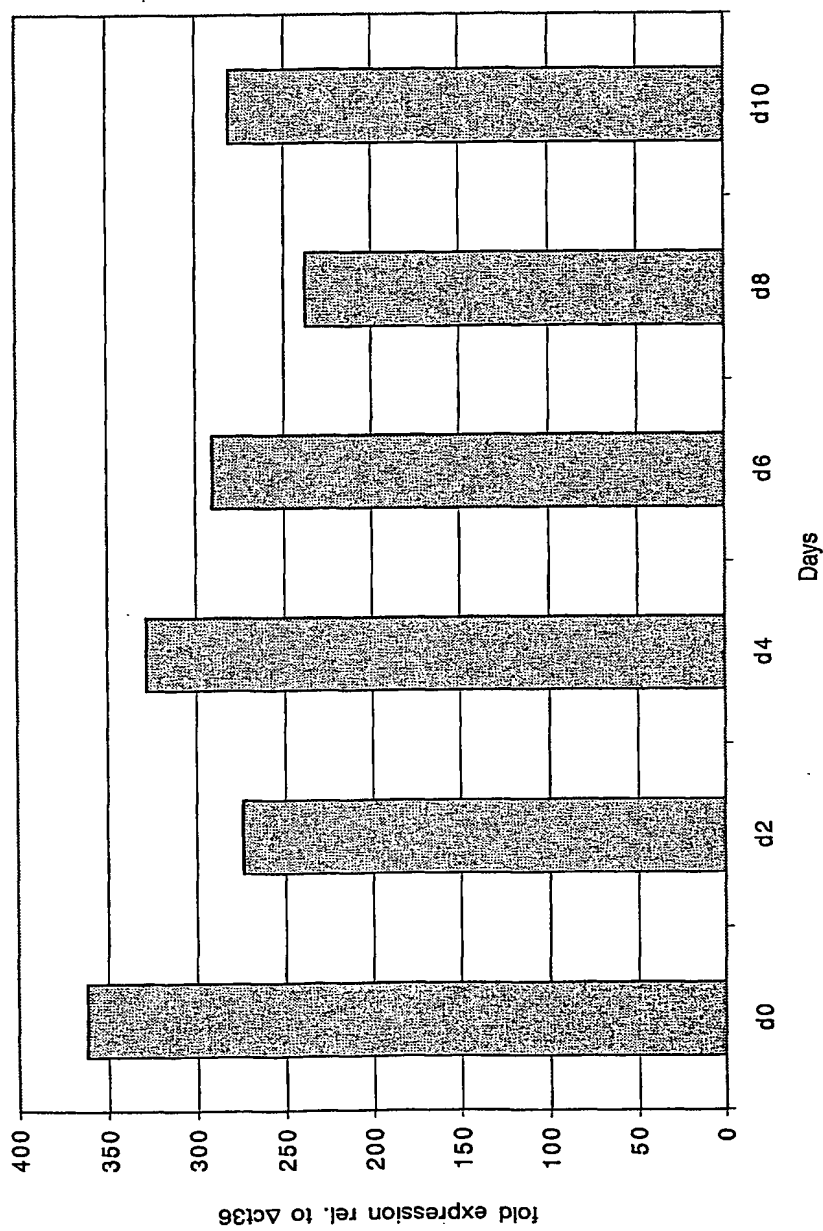


Figure 17. Energy storage metabolites (ESM) content (triglyceride (TG) and glycogen) of a *Drosophila Ady43A* (GadFly Accession Number CG1851) mutant

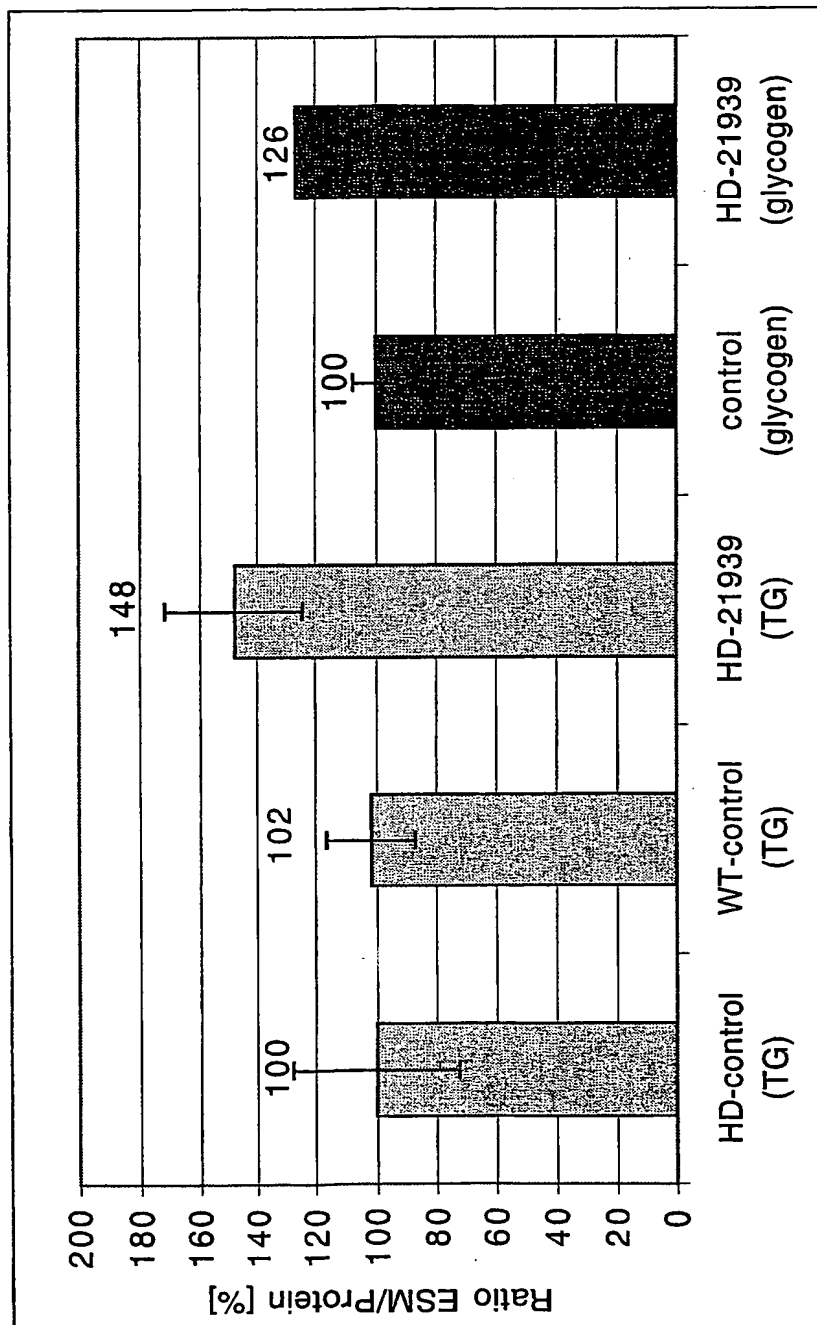


Figure 18. Molecular organization of the *Ady43A* gene (GadFly Accession Number CG1851)

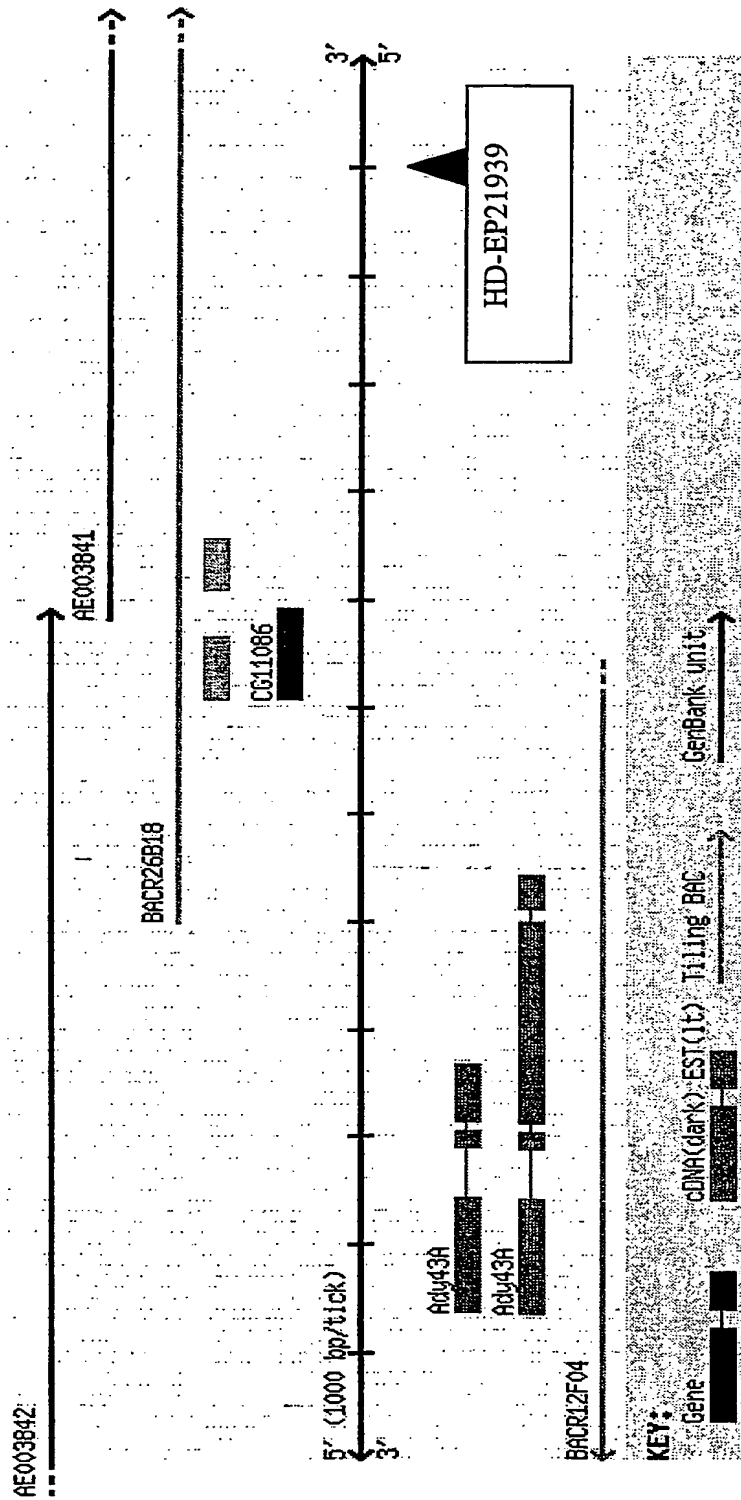


Figure 19. Expression of the *Ady43A* (GadFly Accession Number CG1851) Homolog in Mammalian Tissues

Figure 19A. Real-time PCR analysis of adenosine kinase (Adk) expression in wild type mouse tissues

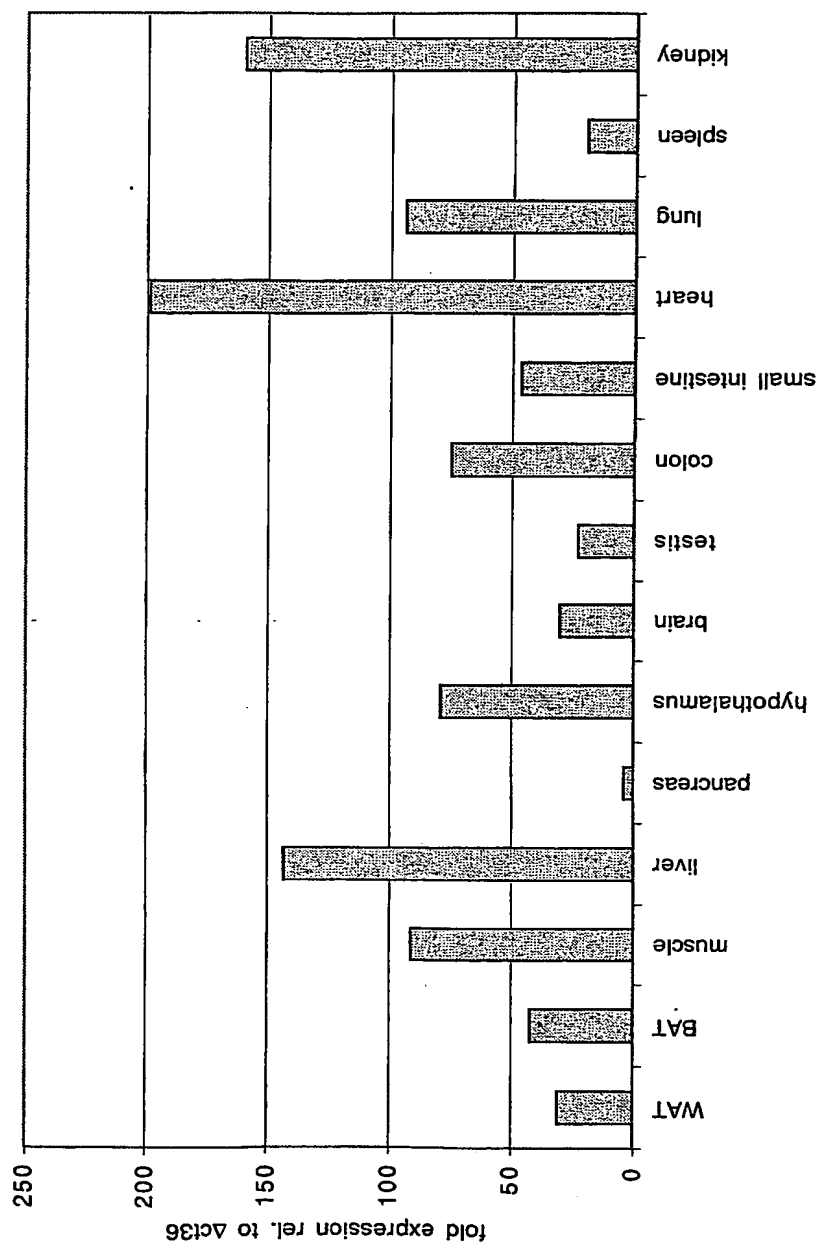


Figure 19B. Real-time PCR analysis of Adk expression in different mouse models

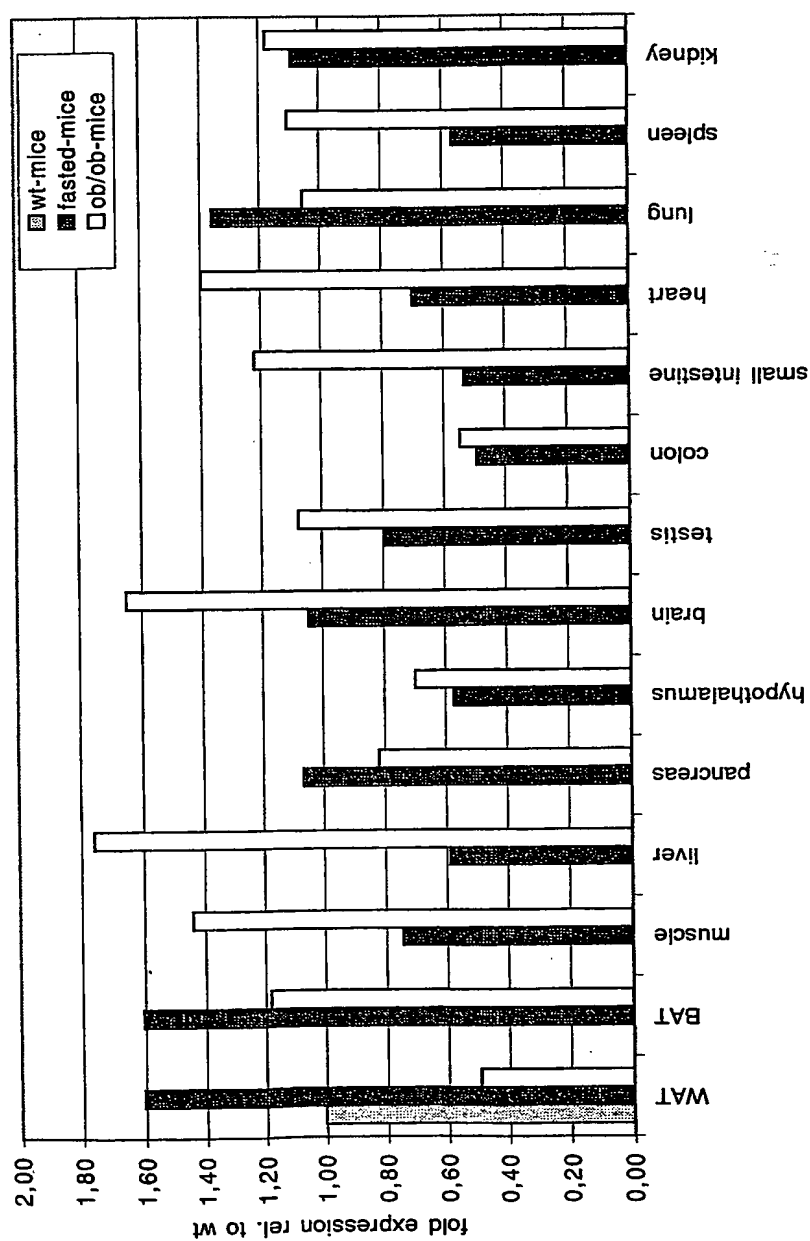


Figure 19C. Real-time PCR analysis of Adk expression in mice fed with a high fat diet compared to mice fed with a control diet

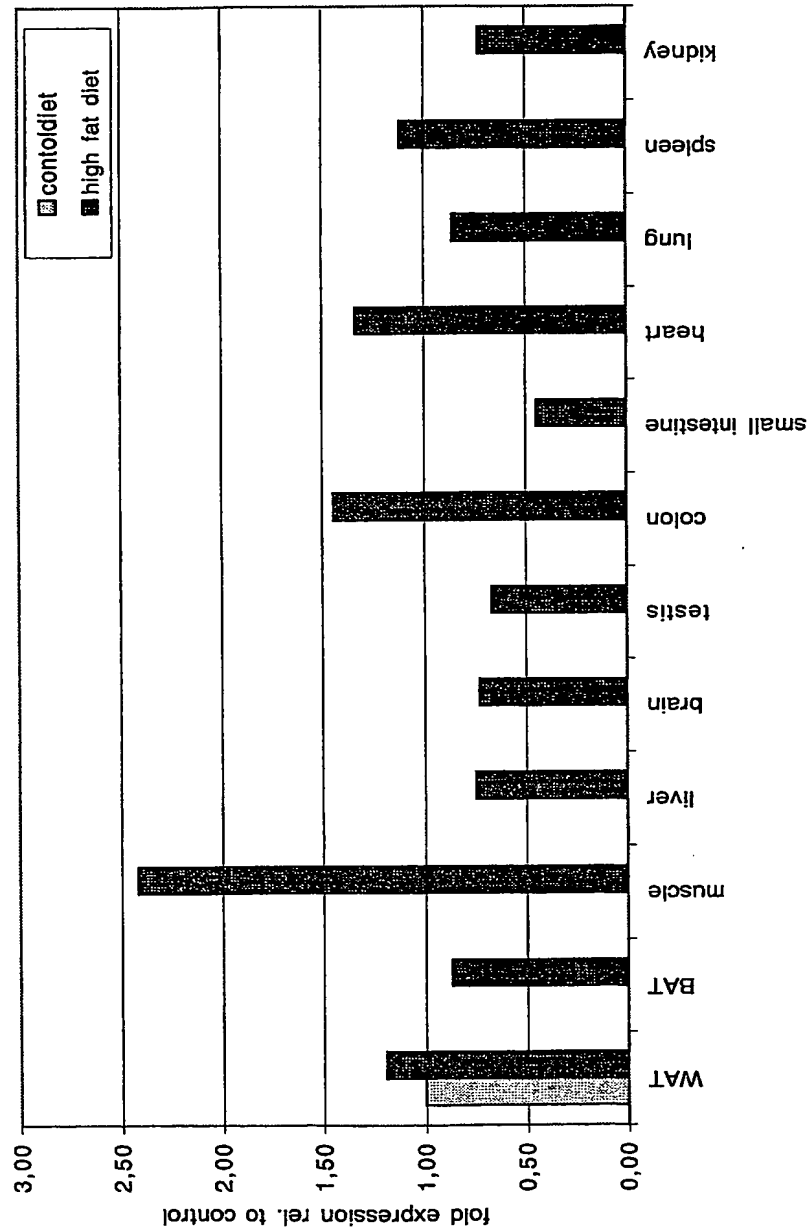


Figure 19D. Real-time PCR analysis of Adk expression in 3T3-L1 cells differentiated from preadipocytes to mature adipocytes

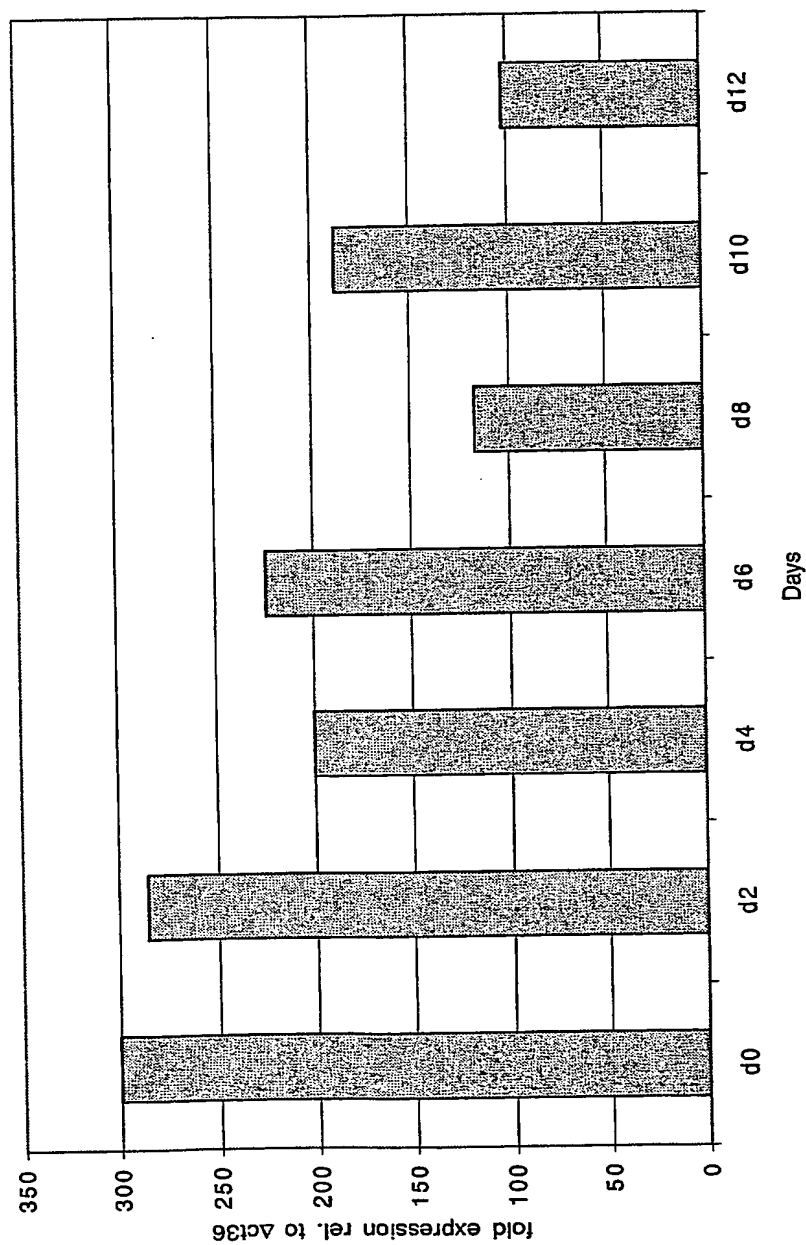


Figure 20. Triglyceride content of a *Drosophila* CG14816 (GadFly Accession Number) mutant

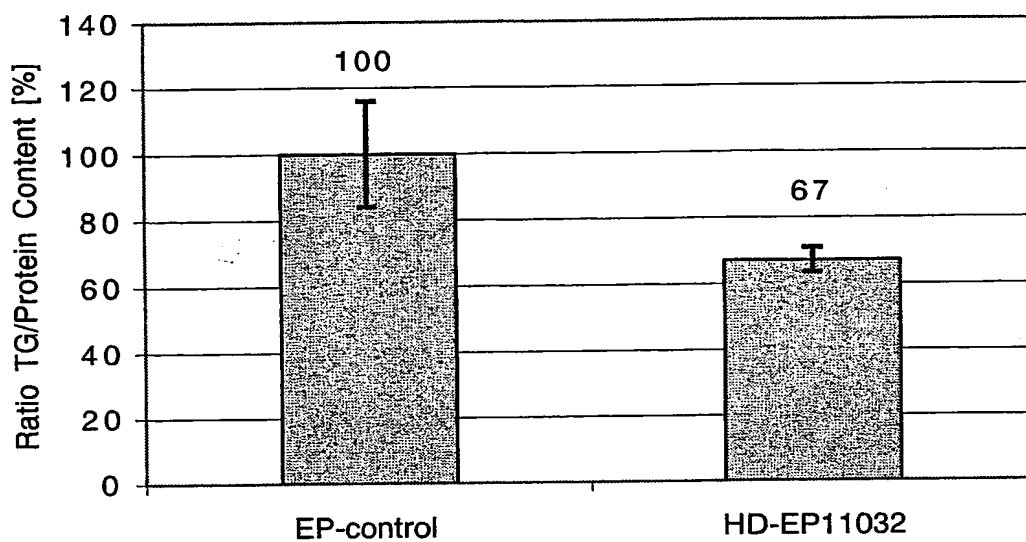


Figure 21. Molecular organization of CG14816 gene (GadFly Accession Number)

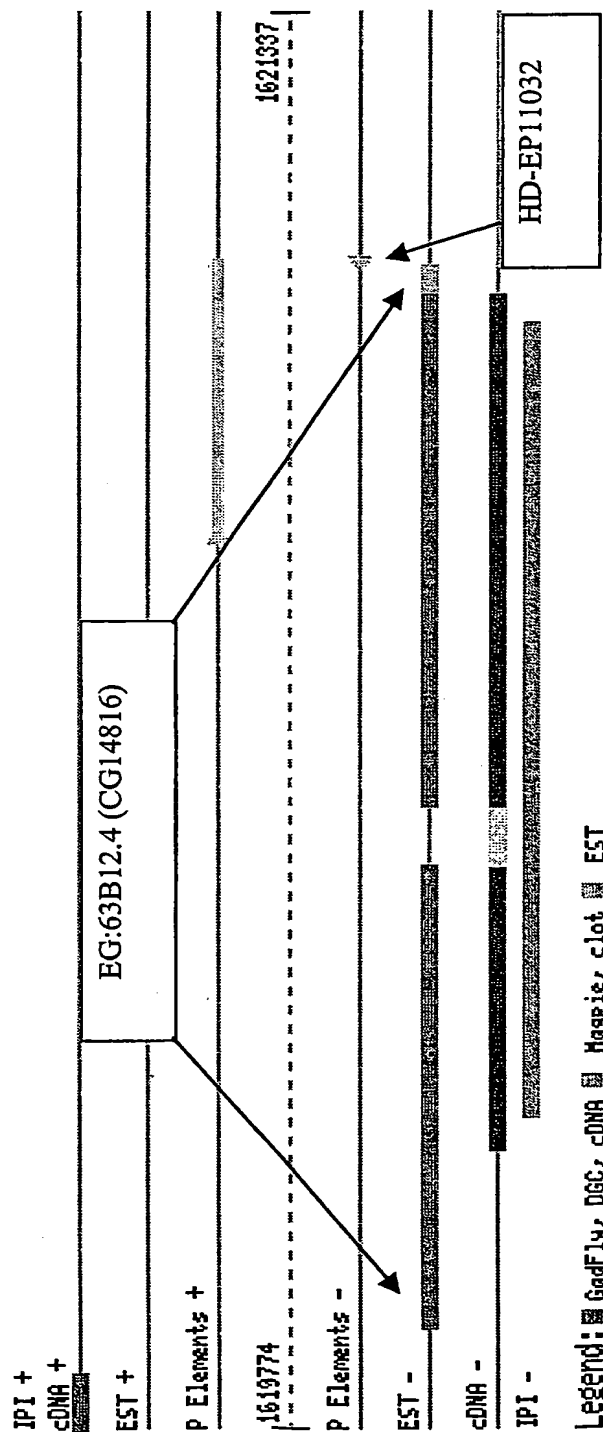


Figure 22. Expression of the CG14816 (GadFly Accession Number) Homolog in Mammalian Tissues

Figure 22A. Real-time PCR analysis of RIKEN cDNA 2610528A17 gene (2610528A17Rik) expression in wild type mouse tissues

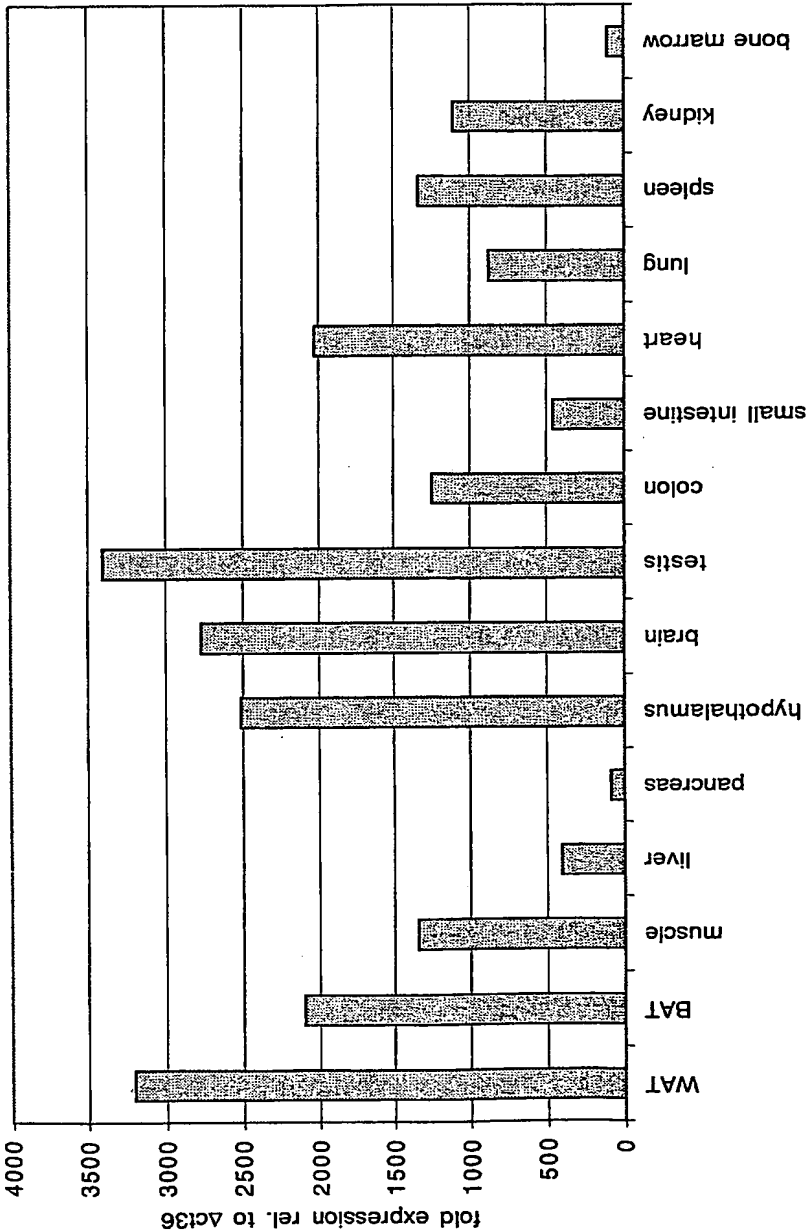


Figure 22B. Real-time PCR analysis of 2610528A17Rik expression in different mouse models

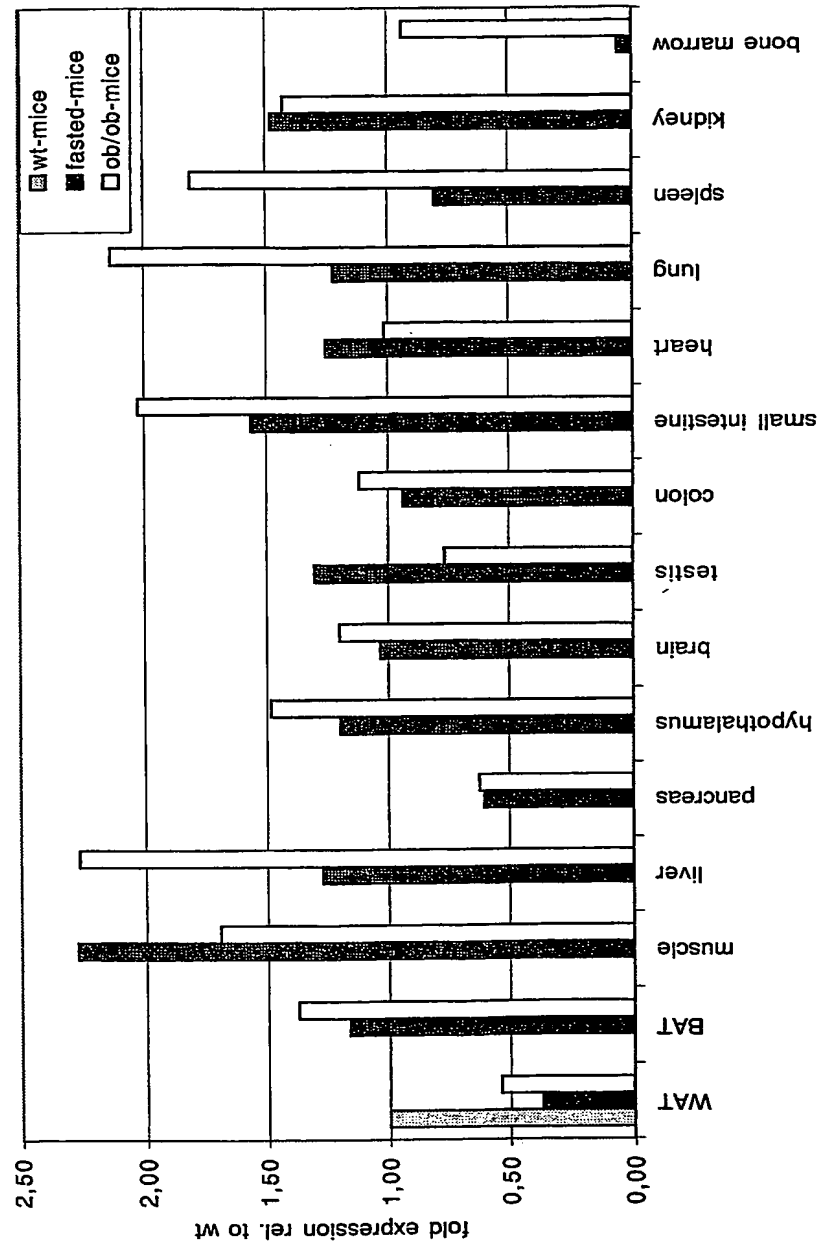


Figure 22C. Real-time PCR analysis of 2610528A17Rik expression in mice fed with a high fat diet compared to mice fed with a control diet

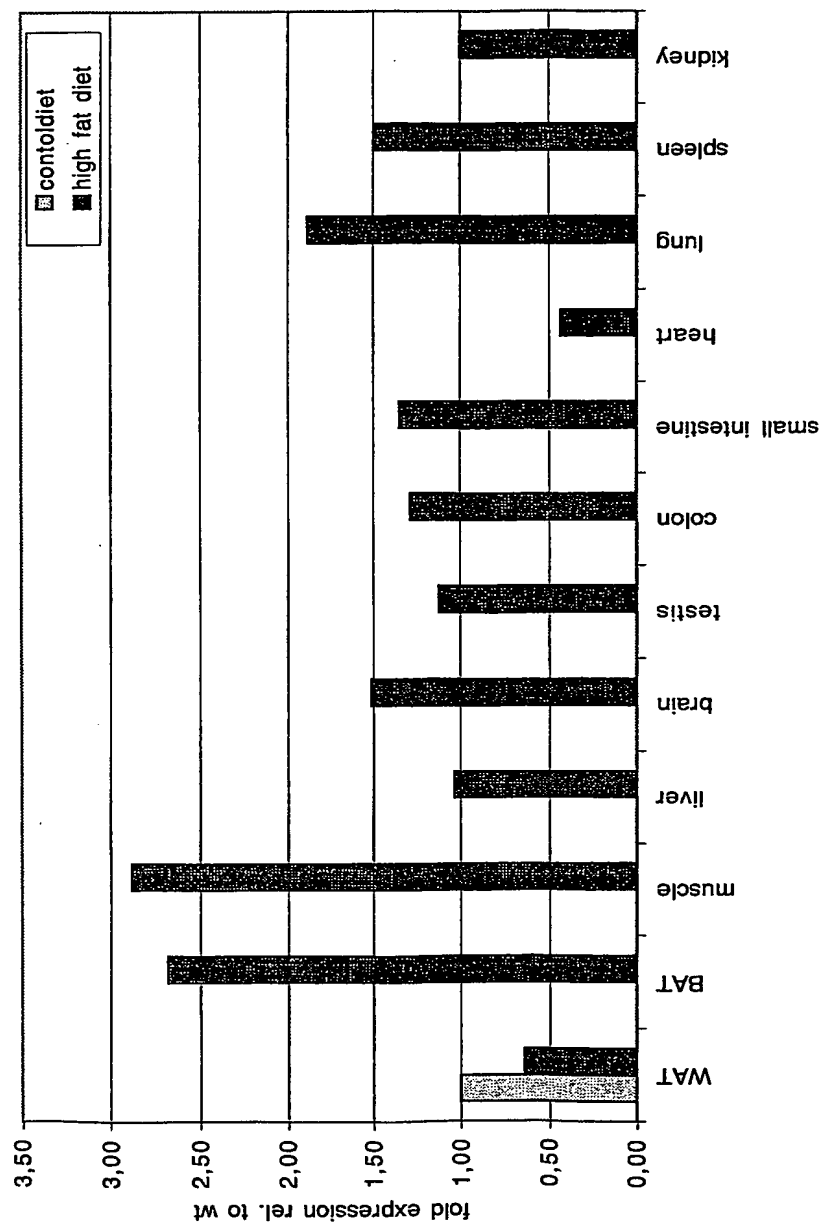


Figure 22D. Real-time PCR analysis of 2610528A17Rik expression in 3T3-L1 cells differentiated from preadipocytes to mature adipocytes

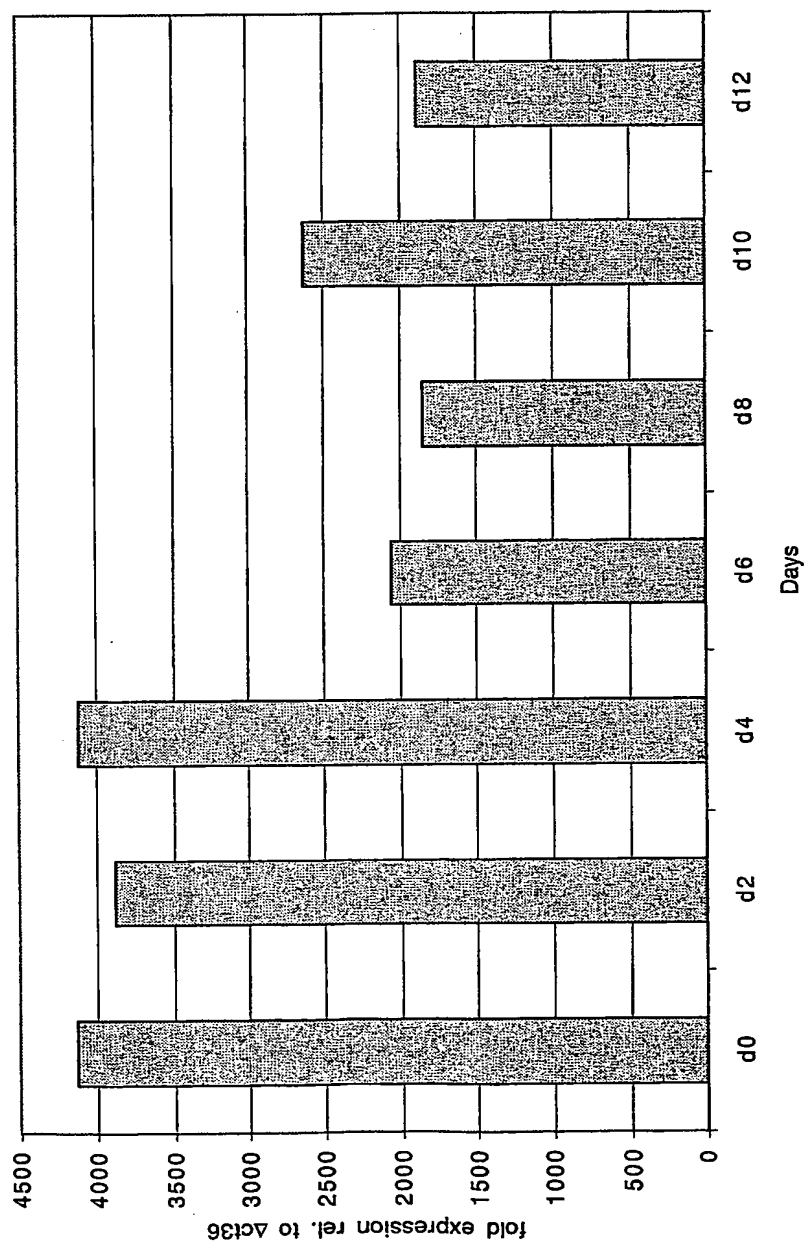


Figure 23. Triglyceride content of a *Drosophila twins* (*tw*s; GadFly Accession Number CG6235) mutant

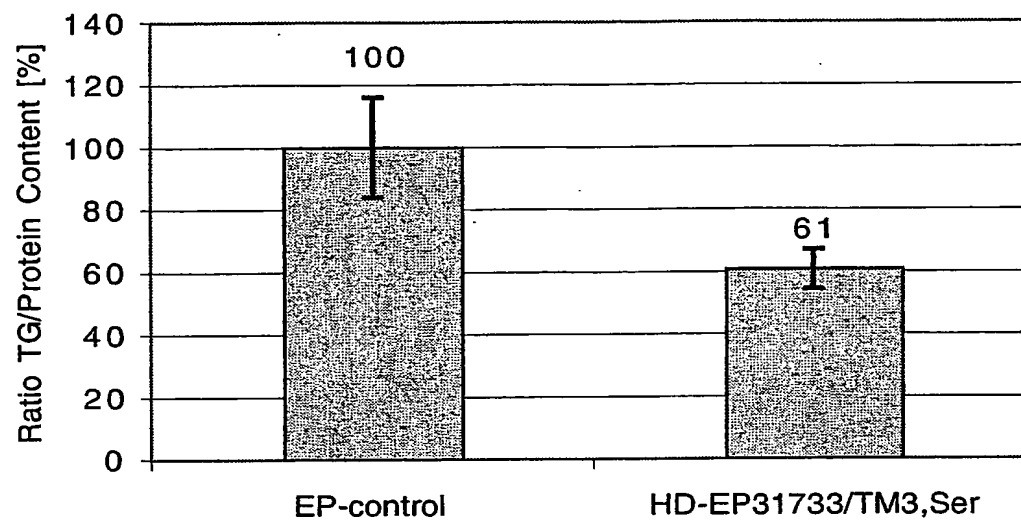


Figure 24. Molecular organization of the *tws* gene (*tws*; GadFly Accession Number CG6235)

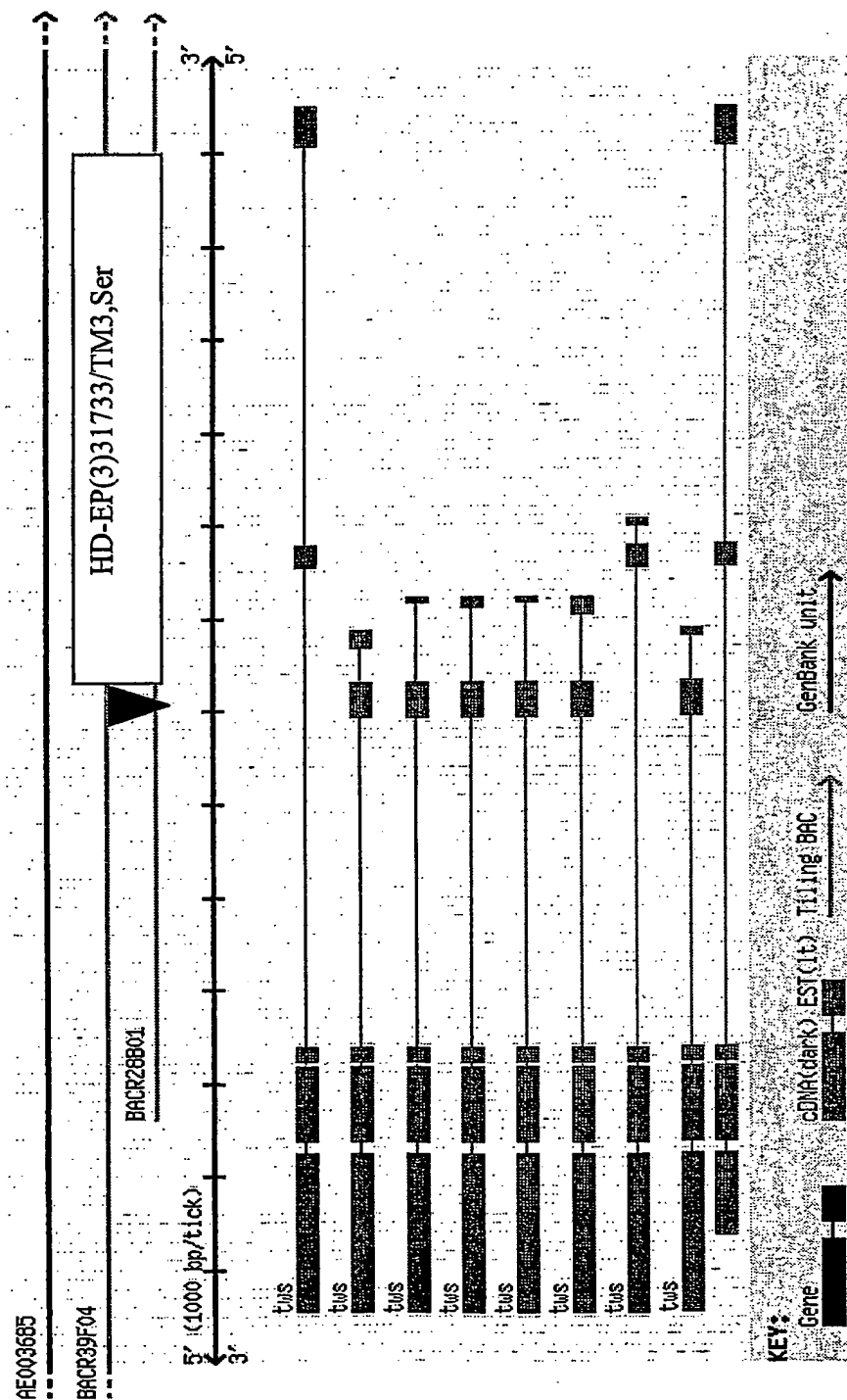
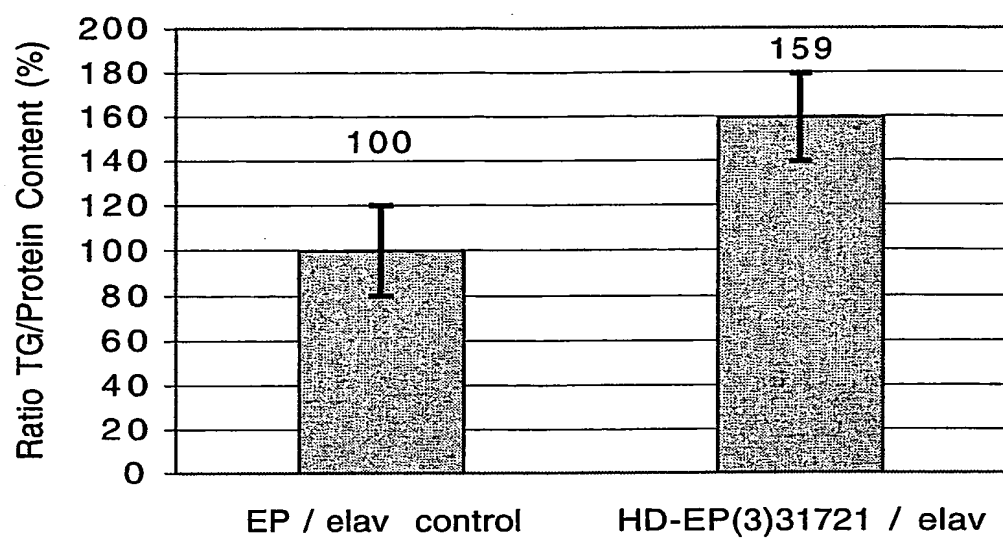


Figure 25. Triglyceride content of a *Drosophila PP2A-B'* (GadFly Accession Number CG7913) mutant



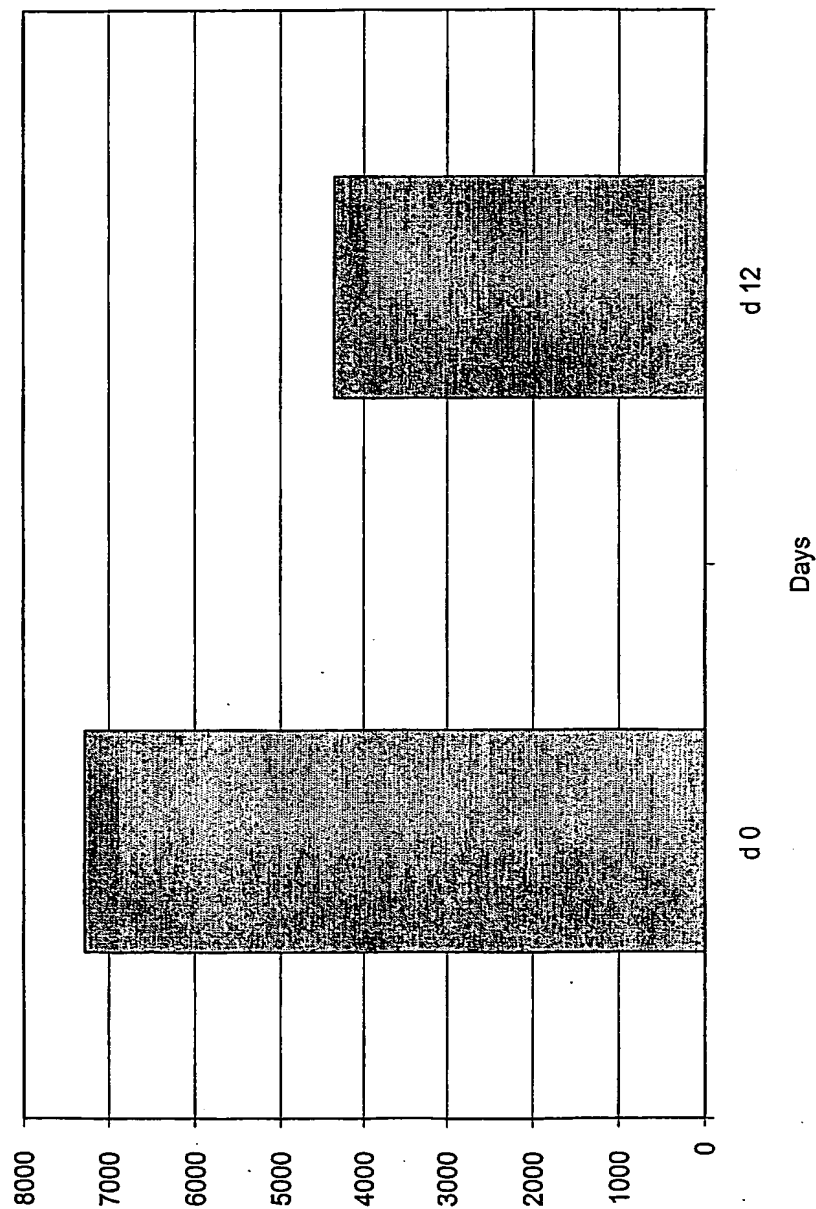
Genomic map of the HD-EP(3)1721 region on chromosome 3p21. The map shows the location of the HD-EP(3)1721 gene (boxed), the Chp20 gene, and several PP2A-B' genes. It also indicates the positions of CG7218, CG7217, CG7215, and CG7212 genes. A scale bar indicates 10000 bp/tick. A key at the bottom explains the symbols used for genes, BLAST hits, cDNA, ESTs, P insertions, tiling BACs, and GenBank units.

Key:

- Gene
- Your BLAST hit
- cDNA (dark)
- EST (lt)
- P insertion
- Tiling BAC
- GenBank unit

Figure 27. Expression of human *guf* homologs in mammalian (human) tissue.

Figure 27A. Microarray analysis of ornithine decarboxylase antizyme 1 (OAZ1) expression in human abdominal derived primary adipocyte cells during the differentiation from preadipocytes to mature adipocytes



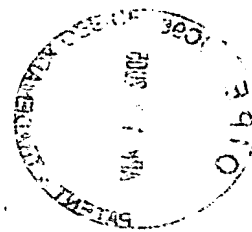


Figure 27B. Microarray analysis of ornithine decarboxylase antizyme 2 (OAZ2) expression in human abdominal derived primary adipocyte cells during the differentiation from preadipocytes to mature adipocytes

